

EDITORIAL

Railway Age

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Does it cost more to delay a freight train or a gang of men? This is a question which is answered correctly or incorrectly

Shall Trains or Workmen Be Delayed?

every time such a train approaches a force engaged in any operation which interferes with the use of the track structure. No one answer can be given for all conditions. It varies with the character of the train, the density of traffic, the relation of the train to following and opposing trains, etc. It also varies with the size of the gang whose operations are interrupted, the seriousness of the interference involved to let a train by, etc. The operating results of a railroad are a composite of the returns from a number of more or less inter-related departments. The net result is the one to be considered. Where any conflict of interests between departments exists, such as is inherent in the condition of maintenance operations such as the relaying of rail, the interest of the road is best promoted when that expedient is adopted which results in the least net cost. Changed conditions make necessary the revision of rules and practices of long standing. The changes in conditions have been many and varied during the last year or two. For this reason the old rules and regulations governing such interference may now be obsolete; they are at least worthy of reconsideration at the present time, particularly in view of the fact that the operations of the maintenance department are being seriously handicapped by the recent large increases in wages, the inauguration of the eight-hour day and the universal shortage of maintenance labor, all of which are serving greatly to curtail the results obtained at the time when maintenance of way forces are facing large programs of work.

The greatest handicap to the development of pulverized coal on the railroads of this country has undoubtedly been the

The Field for Pulverized Coal

relatively low cost of high grade locomotive coal. With higher fuel costs to contend with it is probable that the railroads will find greater economic cause for the utilization of lignite and that the development of means for burning pulverized coal will receive fresh impetus. Some years ago plans were made to use Dakota lignite in a pulverized form on one of the railroads in the northwest. The railroad planned to equip a single locomotive with pulverized coal burning apparatus designed by its own engineering staff and a state university volunteered its support and co-operation to the extent of supplying a quantity of test fuel comprising a variety of native lignites. Attempts to conduct this experiment terminated with the outbreak of the war, but it is earnestly hoped that development work of so broad a character will be revived now that the opportunity exists to effect a greater saving than ever before through the utilization of a cheap low grade fuel. If it can be demonstrated that locomotives may be operated successfully with lignite fuel in pulverized form, it is conceivable that the railroads operating in certain sections of the northwest and the southwest could effect a remarkable reduction in fuel costs and aid the conservation of our rapidly diminishing supply of high grade coal through the utilization of lignite. While it is understood that the fuel problem is far more acute in Italy than in this country, the results from pulverized fuel burning

equipment designed by American engineers to burn low-grade Italian lignite fuel, as described in this issue, should have an important bearing on a similar development in this country.

Nothing could have demonstrated the deficiencies in engine terminals more pointedly than the breakdown which developed at a number of points during the

More Attention to Locomotive Terminal Design

winter of 1917-18. While conditions were aggravated greatly by the unusually severe weather and by the heavy migration of skilled mechanics to the war industries, the basic difficulty lay in the inadequacy of the facilities themselves. After the roads were brought under federal control the Railroad Administration gave first attention to the amplification of these facilities since they constituted a direct limitation on the amount of traffic which could be handled. As a result, the summer of 1918 saw more work of this character under way than ever before, a large amount of which was carried over into 1919 before completion. However, the campaign for modern engine terminal facilities has only begun. There are no facilities the need for which is more urgent or the possible returns from which are greater. Not only are more and larger facilities required, but many layouts should be rebuilt to modernize them. The heavier power and the more exacting demands made on it require new and heavier equipment for its upkeep, which, in turn influences the design of buildings and the track layouts. The economy with which locomotive terminal operations can be conducted depends on the organization and efficiency of the forces employed thereon and on the extent and character of the labor-saving equipment installed. It also depends to an extent not generally realized on the nature of the buildings, track layouts and other facilities provided by the engineering department. For this reason, engineers can afford to give more attention to the problems involved in the operation of locomotive terminals in order that they may be so designed as to be operated most efficiently. The recent creation by the American Railway Engineering Association of a standing committee on Shops and Engine Terminals is a recognition of this need, which is of much significance.

A question which is of vital interest to the railroads and which Congress has yet to settle is that of our future immigration policy. While this has been

Immigration and the Labor Problem

and will continue to be a very live issue it has now assumed an importance which justifies a large amount of careful thought and deliberation on the part of all concerned. It has been estimated by leading authorities that the United States is now short about four million laborers resulting from such causes as restricted immigration, decreased immigration, increased emigration, and the natural increase in the demands for labor brought about by the expansion of our industries and natural resources. In the early part of 1919 the *Railway Age* in an editorial on immigration and emigration discussed this question of labor shortage and predicted at that time that the situation would soon become acute. It was shown then that for the year ending 1914, 1,200,000 immigrants entered this country; for the four years ending 1918, 200,000; and for the

year 1918, alone, there was only a net gain of 16,000. In contrast to this was the fact that over 400,000 emigrants left the country during the six months immediately following the signing of the armistice. It is true that this was an abnormal condition brought about by the war, but it is also one which will not come back to normal for many years unless some definite measures are taken to correct it. What can be done to alleviate this condition? The obvious answer is to promote immigration of a desirable class of people. It must be remembered, however, that other countries are short of labor, and that the countries from which we secure the largest amount of unskilled labor are doing everything in their power to keep their people at home. This means that the United States will have to adopt a really constructive policy to encourage immigration. With this in view the Inter-Racial Council has proposed several measures which are being urged upon the House Committee on Immigration and Naturalization in Washington. One of the main points is the repeal of the literacy test, which requires an immigrant to be able to read and write a prescribed amount before admittance to this country. The advanced policy advocated by the Inter-Racial Council proposes the selection of industrious and thrifty men and women, trained and hardened by the exigencies of war, and their distribution to the points where they can do the work for which they are fitted. The fact is emphasized that while a laborer may read and write a certain minimum amount, it does not have any particular bearing upon his ability to perform useful and valuable work. It is firmly believed by the men advocating the policy of admitting immigrants without book learning that our present labor shortage would be greatly relieved since we would be much more able to secure men of good character with sound bodies and minds and with old-world habits of frugality and industry. A Federal Assimilation Bureau is to be established in connection with this movement for the purpose of securing better relations between the American nation and the immigrants. This bureau will look after the welfare of the immigrant, protect him against fraud, extortion and violence, help him learn our language and place him where he can work to the best advantage for himself and the nation. In general, the entire movement combines the essentials of securing legislation which will permit the securing of a high grade class of unskilled laborers, either illiterates or not, the weeding out of the undesirable, a better method of assimilating these people into the nation, and the setting of a higher standard of citizenship. With such a goal the movement can do much towards increasing the supply of desirable labor if backed by intelligent and constructive legislation. The railroads are so greatly in need of labor that they should take a more active part in helping to secure proper legislation to improve the situation and to make the above mentioned measure effective.

Wages, Rates and the Cost of Living

EXECUTIVES OF THE RAILROAD LABOR organizations, who as officers of the Plumb Plan League have been showering the country with propaganda asserting that an increase in freight rates will result in an "enormous" increase in the cost of living, which Mr. Plumb usually places at five times the amount of the rate advance, have been appearing before the Railroad Labor Board asking for a further increase in wages. The wage increase asked for is estimated at about one billion dollars a year, or about equal to the amount of the rate advance the railroads are seeking, to make up for the wage increases already allowed, together with other increases in the prices of materials and fuel, which also include a few wage advances. Not satisfied with their other argu-

ments, the labor leaders are now taking the position that wage advances in the past have not caused increases in the cost of living, but are merely the effect of increases in prices caused largely by profiteering, and that any further increases in wages should not occasion further increases in prices.

The *Railway Age* has no occasion to deny the existence of profiteering, but we have had some difficulty in reconciling the vast difference thus attributed to the effect of wages and that of rates.

W. S. Carter, president of the Brotherhood of Locomotive Firemen and Enginemen, told the board that the press had "been full of the idea that to raise the pay of railroad men will necessitate an immediate further advance in the cost of living and be simply another step in the so-called vicious circle of rising prices," and that "there has been so much of this that it amounts to a conspiracy." He also gave some figures to show what a small percentage of the prices of various commodities is due to the freight rate and that prices have increased in far greater proportion than either railroad wages or railroad rates.

This paper has also found it necessary to controvert on numerous occasions some of the frequent assertions that freight rates are largely responsible for increased prices and that prices can be held down by the simple expedient of regulating the rate, but when he talks about a "conspiracy," Mr. Carter might address his remarks to some of his associates who have been trying to "humbag" the American people on this subject. There was a time when the railroad labor leaders proceeded on the beautiful theory that wages could be increased by curtailing the profits of the capital invested in the railroads, but since the time has arrived when their demands for a year exceed the largest returns ever paid to capital for a year the theory is no longer usable, to say nothing of being tenable, at least as far as the railroads are concerned.

Neither Mr. Carter nor Mr. Plumb can show very satisfactorily how the wage advance could be paid out of the \$516,000,000 net operating income earned by the railroads in 1919, which would be reduced to nearer \$200,000,000 on the present basis of expenses, and in the two months of this year for which the returns are available, January and February, they did not earn any return at all.

Mr. Carter, from his two years of experience in the Railroad Administration, where he had occasion to take part in staff conferences in a capacity similar to that of a member of a board of directors, has probably derived somewhat of an appreciation of the similarity of the condition in which he finds the railroad employees and that of the companies themselves. Both have had large increases in their expenses—their cost of living—and both are asking for what they consider necessary to restore their pre-war status. Many railroad employees have seen employees in other industries receive greater increases in pay than they have received, while the railroad companies have seen many other companies make huge profits while they have been limited to their pre-war earnings, with some deductions even from that level. Railroad employees, however, if they have not had all they were entitled to, have at least received some large payments on account, while the companies have as yet not had a cent in the way of adjustment to meet their increased expenses, as the increase in rates made in 1918 has thus far gone merely to assist the government in carrying the load.

We take it, therefore, that Mr. Carter appreciates these facts and that he recognizes the need for higher rates, but that he would like to use the higher wages and rates as a sort of excess profits tax to reduce the margins of the other industries who primarily pay the freight rates, without allowing them to be passed on to the consumer. At any rate, Mr. Carter does not try to make the absurd claim that rates increase the cost of living but that wages do not.

Advances in Rates on Foreign Railways

THE FREIGHT RATES of the railways of the United States have been advanced an average of about 33 per cent and the passenger rates an average of about 20 per cent since pre-war days. Additional large advances must be made if the railways are to be rendered self-supporting. However large these additional advances may be, the people of the United States may congratulate themselves that the advances in rates necessitated in this country by the war and government operation will be much less than those that have been made in many foreign countries.

The railways of Great Britain were placed under government control at the beginning of the war and are still being thus operated. During the war the passenger rates were advanced 50 per cent, while the freight rates were not advanced at all, and because the increases in expenses greatly exceeded the increases in rates the government incurred a large deficit. To reduce or wipe out this deficit advances in the freight rates of the British Railways ranging from 25 to 100 per cent were made effective on January 15, 1920, and extra charges were added to rates which cover the collection and delivery of freight at stations as well as its transportation. In March, 1920, the demurrage charges imposed for holding a car one day beyond the period of free time were increased 100 per cent, and the charges for subsequent days 200 per cent.

During December, 1919, and January, 1920, the Italian railways advanced their first class passenger fares 80 per cent, their second class fares 60 per cent and their third class fares 50 per cent. Both freight and passenger rates already have been advanced 30 to 40 per cent. The demands of the railway workers for higher wages and the question of freight rate increases were taken under consideration by the government. It was decided that the freight rates were too high to be raised further and that taxation would have to be utilized to meet the deficit of the railways, which are owned as well as operated by the government. The Italian railways even before the war incurred a large deficit each year which had to be paid by the taxpayers. In April, 1920, an order was issued by the Italian State railways imposing a 100 per cent supertax on the rates for foreign merchandise entering Italy.

The passenger rates of the French railways, two of which are owned by the government, and all of which are being operated under government control, were advanced 40 per cent during the war, and the freight rates 30 to 37 per cent. Because of the deficits which have continued to be incurred, proposals for further advances have been under consideration.

The advances in rates on the Austrian railways since pre-war days have been enormous. The increase of 30 per cent made in February, 1920, made the total increases about 330 per cent. Doubtless the immensity of these increases is largely explained by the depreciation of the country's currency.

In September, 1919, freight and passenger rates in Belgium had been increased 40 to 50 per cent since pre-war times. Further increases have been made since then, but the amount of these increases is not known.

In September, 1919, freight and passenger rates in the Netherlands were advanced 50 per cent.

Very much the largest advances reported in any country have been made in Germany where, as it is well known, practically all the railways are owned and operated by the government. Repeated advances were made during the war and still further very great advances have been made since the signing of the armistice. The passenger rates now, according to our European editor, who recently visited Germany, average about 700 per cent higher than before the war and the freight rates about 800 per cent higher. These enormous

advances are explained not only by the fact that the operating expenses of the German railways have increased very greatly, but by the fact that the value of the country's currency has greatly depreciated. Even measured in the pre-war value of money, the passenger and freight rates in Germany apparently have been increased much more than in any other country.

Larger advances in rates have also had to be made in many countries which were remote from the seat of hostilities. For example, in December, 1919, all freight and passenger rates on the South African government railways were advanced 25 per cent, while in August, 1919, a raise of 20 per cent in both freight and passenger rates was made in Brazil, and in October of the same year additional increases were proposed. In Canada the railways have made the same advances in rates as have been made in the United States, and it is assumed that they will duplicate any further advances which may be made in this country. Even in Australia, which was about as remote from the theatre of hostilities as any part of the world, all the government railways have suffered severely from the effects of the war and have had to make advances in their rates, although we have no detailed information as to the exact percentages of increase.

Business Men and the Railroad Strikes

THE RECENT STRIKES on the railways have subjected to a very severe test not only the operating organizations of the railways but also the industrial and financial structure, and the patience and sporting spirit of the business men of the country. It seems safe to say that the strikes have now been definitely won by the railways. In many parts of the country the roads are still operating with reduced forces in the yards, but the number of men at work is steadily increasing, and it seems but a matter of a short time until the normal amount of traffic will be moving.

The effects of the strikes are still being seriously felt, however, and will be felt for months. When the statistics regarding earnings and expenses in March and April are available they will show the roads have suffered severely in respect to net earnings. Large deficits have been incurred which the taxpayers will have to pay, since the standard return of most companies is guaranteed by the government until September.

The result of the inability of the roads to operate anywhere near to capacity has been that vast amounts of products have been accumulated which could not be moved, and that many large industrial concerns have been obliged, because of inability to get raw materials or ship finished products, to curtail their operations or shut down. Large amounts of capital tied up in raw materials and finished products have been rendered useless for the time being, and hundreds of thousands of men throughout the country have been thrown out of employment. The reduction in the productive and mercantile activities of the country has increased the already great strain upon financial institutions and has tended to increase the cost of living and the general unrest.

It has been most instructive to observe the way in which the various classes of the people, and especially business men, have borne the inconveniences, losses and suffering due to the railroad strikes. Advocates of government operation or the Plumb plan were sure to find much in private operation to criticise and to use its shortcomings, both apparent and real, as material in the propaganda against private ownership. On the other hand, we had hoped that business men, who had almost unanimously favored the return of the railways to private operation, would be patient with shortcomings of transportation which were certain to be experienced,

and would almost unanimously back the railway managements in their efforts to re-establish discipline, to restore efficiency of operation, and to prevent the companies from having undue burdens imposed upon them which would have to be transferred to the public.

The recent strikes and their effects put the consistency and courage of business men to their first serious test since private operation was resumed. It seemed clear when the strikes began that the railways should fight them to a finish, and the reasons for this appeared to be generally understood. For the railways to have made any concessions to the strikers would have resulted in men who struck in disregard of their contracts with the companies and of the provisions of the Federal law gaining by so doing, and the much larger number of employees who stayed at work and agreed to the settlement of their claims by peaceful and lawful means losing, at least for the time, by so doing. Besides, since the strikers were acting in violation of the rules and the orders of the officers of their own brotherhoods, for the railways to have made concessions to them would have embroiled the roads with the brotherhoods. Finally, the total wage demands which have been made by the various railway labor unions amount to about \$1,000,000,000 a year. If the railways had granted the demands of the outlaw organizations they would have rendered it illogical and practically impossible for them to have resisted the demands of the regular organizations, and would have taken a step which almost automatically would have added at least \$1,000,000,000 a year to operating expenses. If the Interstate Commerce Commission, under the provisions of the Transportation Act, had held that there was no justification for this enormous increase in wages it would have refused to advance the rates enough to cover it, in which case a large part of the railroads would have been bankrupted. On the other hand, if, under the provisions of the Transportation Act, the Commission had decided it was required to make advances in rates large enough to cover this increase of expenses, the entire amount of it would have been passed along to the industries and people of the country in the form of advances in rates.

A large majority of the business men have seemed to appreciate that the welfare of business and the nation in the long run would be best promoted by the managements fighting the strikes out and winning them regardless of temporary inconveniences and losses. But the fact must be noted that many business men, concerns and organizations have adopted a tone of criticism with reference to the course the railways have taken. This has been especially true of a large part of the traffic managers of industrial concerns and commercial organizations. They have complained in private and often in public because, as they have said, the railways did not "do something" to move business better, in spite of the fact that railway officers, high and low, during the crisis have acted with all the intelligence and energy they could, numerous officers having put in many extremely long days working in the places of the strikers. One journal which devotes itself especially to traffic affairs, and whose clientele consists principally of the traffic managers of industrial concerns, published an editorial making a bitter attack upon the General Managers Association of Chicago upon the ground that it issued untruthful statements regarding the situation. If this paper had ever sent a representative to the office of the General Managers Association to get the facts it would have known that no statement had been issued on behalf of the Chicago lines which was not carefully based upon detailed information furnished to the General Managers' Association by the officers of the individual railways. Its attack upon the good faith of the managements of the Chicago lines was significant chiefly because it reflected the views of business men who seemed to know and care nothing about the situation except that the railways were unable to move the normal amounts of freight.

Developments such as those mentioned indicate why the *Railway Age* long has believed that whether private operation will stand the test to which it is now being subjected will not be determined principally by propaganda carried on for government operation or the Plumb plan, but by persons who assert and believe they are in favor of private operation but who constantly say and do things which tend to render it impossible for private operation to be successfully conducted. It was this class of people who from the year 1910 until government operation was adopted, successfully opposed every advance in rates for which the railways asked and thereby rendered it impracticable for the roads adequately to develop their facilities. Many men of this class, after having thus helped to bring about government operation, became, after it was adopted, among its loudest and bitterest critics. It seemed evident that there could be no reasonable hope that private operation could be made successful after the railways were returned to their owners unless legislation was enacted reconstructing the whole system of regulation. Nevertheless, many men of this same class alined themselves in opposition to almost every proposal which was put forward with the object of making it reasonably certain that the railways would be given opportunity to earn enough money to enable them to develop their facilities. And now, within two months since the railways were returned to private operation, we find people of the same class criticising the railway managements because of the results of strikes and because, as they say, the railway managements do not "do something." Just what they would have the railway managements do in addition to what they have been doing is not stated.

It is easy enough to meet the arguments of the avowed propagandists for the Plumb plan or for government operation of the railroads. The propaganda against private management of railroads which is the most harmful always has been, and always will be, that carried on by persons who pretend to be, and who really think they are, in favor of private management, but who will never do anything to help solve the railroad problem under private management, and who seize upon every possible pretext to carp at what the managements of the railroads themselves do in trying to solve the problem.

New Books

Proceedings, American Railway Bridge & Building Association, 1919; 6 in. by 9 in., bound in cloth or paper, 210 pages, illustrated, published by the association, C. A. Lichty, Chicago & North Western, Chicago, secretary.

The American Railway Bridge & Building Association has held 29 annual conventions, the last one taking place at the Hotel Statler, Cleveland, Ohio, on October 21 to 23, 1919. The present volume is a complete report of this convention. The proceedings cover papers and discussion on various phases of the bridge and building master's duties. The first report covers bridge inspection, taking up the variations in practice on the different railways and including a very comprehensive set of recommendations on organization, personnel, form of reports, etc. Two reports, that on the storage of fuels used in railway pumping outfits and one on a comparison of the internal combustion engine with the steam engine as the prime mover for pumping units, contain a large amount of valuable information on this phase of water service. Another report contains detailed directions for the renewal of timber trestles and wooden bridges. Other subjects covered in the report of this convention were the repair and inspection of roofs, the painting of metal structures and country.

Railroads File Application for Rate Advance

Need of \$1,017,000,000 More Revenue—Average Increase
of 28 Per Cent in Freight Rates

WASHINGTON, D. C.

THE RAILROADS of the country have submitted to the Interstate Commerce Commission statements showing the amount of additional revenues needed to meet increased operating costs, and to adjust their income to the 6 per cent income basis provided in the new Transportation Act. The total increase is estimated at \$1,017,000,000, and the statements filed constitute formal applications for rate increases to produce that amount.

The carriers show that while the basis of operating expenses due to higher wages and increased prices of material and fuel has advanced about 100 per cent, their revenue basis has increased less than 40 per cent, and that it will require now to restore the relation between revenues and expenses an increase of 19.46 per cent.

The railroads suggest to the commission, however, that the additional revenue be gained from freight traffic, leaving passenger rates at the present level. To provide these increases to total revenues without disturbing passenger rates the carriers estimate will require an average increase in freight rates of about 28 per cent. The figures have been prepared, however, by groups, on the assumption that the commission may divide the country into three districts.

Railroads in Eastern territory estimate the need of an increase of \$544,000,000, which is 21.1 per cent of total reve-

the 12-months' period ending October 31 has been used.

It is understood that the commission is working with the idea of making the rates designed to produce the revenue which it finally decides to allow effective on September 1, when the government guaranty expires, or sooner if possible. After having calculated the amount of revenue needed, a big problem will remain in working out the necessary rate adjustments. The railroads have also made some proposals as to the basis of the increase in freight rates. It is expected that hearings will be held during the early summer, but the commission has indicated a desire to have the carriers cooperate with the representatives of the shippers as much as possible in working out the proposed tariffs before the hearings are held.

For the purpose of determining the temporary value for rate-making purposes it is understood that the commission is giving consideration to all the available data, including the property investment accounts and its own valuation data. Both because of the new responsibility put upon the commission by the law and because of the emergency nature of the case, the proceedings incident to the proposed readjustment of rates are being handled along different lines from previous general rate advance cases. Last November, after the director general had advised the carriers that the gov-

SUMMARY—RAILWAYS OF CLASS I, II AND III, AND SWITCHING AND TERMINAL COMPANIES

Item	Eastern District	Southern District	Western District	United States
Property investment, October 31, 1919.....	\$9,368,698,698	\$2,283,990,948	\$8,963,883,753	\$20,616,573,399
Six per cent on investment.....	562,121,921	137,039,457	537,833,024	1,236,994,402
Adjusted net railway operating income.....	18,008,219	16,269,429	184,939,759	219,217,407
Difference between adjusted net operating income and 6 per cent on investment	544,113,702	120,770,028	352,893,265	1,017,776,995
Total freight revenue.....	1,788,033,734	390,199,595	1,475,695,163	3,653,928,492
Per cent on freight revenue required to meet deficit under 6 per cent.....	30.43	30.95	23.91	27.85
Total all revenues adjusted.....	2,570,967,815	581,768,519	2,078,245,598	5,230,981,932
Per cent on total all revenues required to meet deficit under 6 per cent.....	21.16	20.76	16.98	19.46

NOTE.—Eastern District includes the Illinois Central lines north of Cairo, and the Southern District includes the Illinois Central lines south of Cairo.

nues for 1919, or 30.4 per cent if applied only to freight rates. Southern railroads propose to advance freight rates by 30.9 per cent to provide 20.7 per cent larger revenues or an increase of \$120,000,000. The needed freight advance in the West is put at 23.9 per cent to increase all revenues by \$353,000,000, or 17 per cent. The need for greater advances east of the Mississippi, the carriers show, is largely due to the effect of standardization of railroad wages and working conditions during the war.

The carriers show that their net income in 1916 was \$1,056,000,000, and that in 1919 it fell to \$510,000,000, notwithstanding an increased investment in these three years of more than \$2,000,000,000. But, the carriers point out, if the present level of costs had been in operation throughout 1919 the year's net would have been only \$220,000,000, or a little more than 1 per cent on their property investment of \$20,616,000,000.

A summary of the principal facts shown is given in the table. The estimated requirement is figured, therefore, by readjusting the 1919 results to take account of increases in wages or prices that became effective during the year and were in effect at the end of the year and also the recent increases in fuel prices, but no allowance is made for any wage increase that may be awarded by the Railroad Labor Board nor for several other uncertain factors. To secure a more normal basis than the entire calendar year, and because the figures are based on questionnaires sent out in December,

ernment would initiate no further advances in rates, the Association of Railway Executives appointed various committees to study the situation with the idea of developing the necessities of the railroads as to increased revenues and the methods to be followed in obtaining them. After the passage of the transportation act the commission asked the executives to furnish it with the information they had gathered by questionnaires from the various roads and several informal conferences have been held between the commission and executive, traffic and accounting officers of the roads.

At a conference on April 7 Howard Elliott, chairman of the Northern Pacific, and chairman of the executives' rate committee, made a statement outlining the situation of the carriers in general and particularly of the eastern roads, in which he estimated their requirements in the way of additional net operating income as \$500,000,000. On April 16, detailed preliminary exhibits were filed on behalf of the Southern and Western roads, accompanied by statements by C. H. Markham, president of the Illinois Central, for the Southern roads, and by S. M. Felton, president of the Chicago, Great Western, as chairman of a sub-committee of executives for the Western district. These have since been revised in some particulars and the revised statements were filed this week. On April 24, similar statistics were submitted on behalf of the Eastern roads accompanied by statements by Daniel Willard, president of the Baltimore & Ohio, and by George M. Shriver, chairman of the accounting com-

mittee for Official Classification territory. In his statement to the commission on April 7 Mr. Elliott said in part:

Statement by Howard Elliott

We appear before you today not primarily as railway officials, trying to extract all we can from the American public for the benefit of railway security owners, but rather as quasi-public servants charged with the very great responsibility of so operating and developing the railways that they may render adequate service and the country may continue to grow.

The people of the United States have decided, through their representatives in Congress, that they desire private ownership and governmental regulation of the railways; also governmental protection and encouragement. Such being the case, the railway business must obtain earnings enough and have sufficient credit to sustain it in competition with other forms of industry, into which people put their time, brains, energy and money.

To restore the credit of the railways a number of things are necessary, but especially the *confidence* of the every-day investor must be obtained. The passage of the new bill has already encouraged him, but he needs greater encouragement through the co-operative work of the Interstate Commerce Commission, railroad owners, railroad officers, and railroad employees. Unless all of us will look at the matter in a broad, far-seeing way, remembering that the United States is a relatively undeveloped country, needing transportation in almost unlimited quantities, and in improving quality, the growth of the country will be checked.

At present, there is congestion at many points. Lumber and grain movements from the northwest are choked because of insufficiency of available equipment, and the same is true of fruit shipments from the southwest, corn movements from the middle west, and coal and coke, ore, vegetables, manufactured articles and merchandise in other sections. There is a continually increasing demand on the part of the traveling public for more passenger equipment, more frequent train service, and better accommodations.

All this calls for more and better equipment and motive power. The immediate equipment needs of the railways, and the cost of meeting those demands, have been estimated by a committee of the railway executives as follows:

100,000 freight cars [*]	\$370,000,000
2,000 engines	130,000,000
3,000 passenger cars	90,000,000
1,000 baggage cars	20,000,000
	<hr/> \$610,000,000

^{*}Including 20,000 refrigerator cars.

Some portion of this \$610,000,000 can probably be raised by loan from the fund of \$300,000,000 provided for the purpose in the transportation act, but the bulk of it must be raised by the railways, on the basis of their own credit.

In considering the matter of credit, two considerations must be borne in mind; first, the general state of the money market, and second, the standing of railway securities already outstanding. As to the money market, it is common knowledge that conditions are difficult the whole world over, and will doubtless continue so for some time, as a result of the world-wide economic and financial disturbance brought about by the war. It is hard to get large amounts of money for new capital purposes, the price is high, and will apparently continue high for a long time. For example, United States Liberty Bonds, the premier securities of the world, are selling today on a $5\frac{1}{4}$ to $5\frac{1}{2}$ per cent basis. New York City six-month notes, free of every form of taxation, are selling on a $5\frac{3}{4}$ per cent basis, while one-year notes of the city of Cambridge, Mass., likewise wholly exempt from taxation, are on a 6 per cent basis.

Recent issues of obligations by various corporations have sold on a high yield basis. The Anglo-American Oil Com-

pany, which is the Standard Oil Company of England, has issued five-year notes at a net cost to the company of about 8.3 per cent. The stock of that company is selling around 700. Texas Oil Company notes have sold at a basis higher than 8 per cent to the company, although its stock is selling above 200. The Bell Telephone Company of Canada has issued five-year 7 per cent notes at a price netting above 8 per cent. Canadian Pacific equipment notes, maturing serially in from 1 to 12 years, have sold at about a $7\frac{1}{2}$ per cent basis, and it has been hard to distribute them to investors. Virginian Railway ten-year notes were recently issued at a net cost of $7\frac{3}{4}$ per cent. It is estimated that equipment notes of the stronger railway companies must net from $7\frac{1}{2}$ to $8\frac{1}{2}$ per cent to the individual investor in order to find a market.

Chicago, Burlington & Quincy joint fours, due in 1921, can be bought now to yield 9 per cent. No one seems able to say how the refunding of these securities next year is to be accomplished. In fact, it is difficult today to handle a large refunding proposition of this sort on any basis. A short-term extension would cost probably more than 7 per cent, although if confidence is restored a long-time refunding proposition might be handled at less than 7 per cent.

The outstanding fact throughout all this presentation is that virtually no railway company can borrow money today for less than 7 per cent. This statement is borne out by the yield which the purchaser of railway bonds now outstanding in the market secures on his investment, and it is manifest that, other things being equal, new issues will hardly fare as well as seasoned securities already on the market. On the basis of present quotations, Baltimore & Ohio convertible $4\frac{1}{2}$ s of 1933 yield $9\frac{1}{2}$ per cent; Chesapeake & Ohio convertible $4\frac{1}{2}$ s of 1930, 8 per cent; Chicago & North Western 5s of 1933, $6\frac{1}{2}$ per cent; Erie prior lien 4s, about 8 per cent; Ft. Worth & Denver City first 6s of 1921, over 10 per cent; Long Island 4s of 1948, over 7 per cent; New York Central convertible debenture 6s of 1935, nearly 7 per cent; various New York, New Haven & Hartford debenture 4s, 8 per cent, irrespective of maturity; Norfolk & Western bonds, about 6 per cent; Union Pacific 4s of 1927, over $6\frac{1}{2}$ per cent.

So-called high-grade railroad stocks are selling today at prices to net the rates of return to the purchaser indicated below:

	Price, about	Yield
Northern Pacific	80	$8\frac{3}{4}$
Pennsylvania	43	7
A. T. & S. F.	90	7.7
Louisville & Nashville	90	7
New York Central	79	7.6
C. & N. W.	86	8.1

Promptness now in reaching conclusions will help very much; prompt appointment of new commissioners so that you can go ahead under full steam; prompt appointment of the Railroad Labor Board; prompt action by both bodies as to rates to be charged the *public* and rates to be paid to the *employees*. The next important step will be *decisions* by these two bodies that will show the investor that the theory of the new law to protect and encourage the railroad business is being put into actual *practice*. In the interest of service to the public, the law ought to be interpreted in a generous spirit. The $5\frac{1}{2}$ and 6 per cent provisions of the law reflect the idea that those rates of return were ample in years gone by. Conditions are rapidly changing, and the commission may find it wise to increase the rates after the close of the two-year period. In its future interpretation of what constitutes a *fair* return on the *fair* value of railway property the commission may well find that 6 per cent is not adequate. On the other hand, if the commission should find that any conclusion as to rates produces more than is needed, the power exists to make immediate correction.

It seems to us that the imperative need today is for the commission to decide at once what the Eastern group of car-

riers need and then permit rates so as to meet that need. In some ways the Eastern railways are the most important group of all, and their failure to develop adequately, in comparison with the traffic growth of the country, will choke the balance of the railway lines. Service is what the country wants and is willing to pay for. In view of all these considerations, the Eastern railways have come to the conclusion that an addition of at least \$500,000,000 to their net operating income, over and above that earned in 1919, is needed to put them on a basis to furnish service and develop their facilities. This is approximately the sum by which their net operating income in 1919 fell short of a return of 6 per cent on their property investment. In arriving at the amount, allowance is made for the estimated increased cost of fuel growing out of the recent decision of the coal commission and also for increased rates of pay and increased material prices that became effective in 1919, but where not reflected in the whole year's operating expenses; but it does not include any allowance for possible wage increases resulting from present demands of railway labor nor for a possible increase in the rate of depreciation (which now averages about 3 per cent in the Eastern district, as compared with $4\frac{1}{2}$ per cent charged by the director general on new equipment), nor for additional payments to connecting short lines under joint divisions, nor for additional cost of capital for improvements in 1920. The amount of \$500,000,000 seems large, and it is, but we must recall that the United States is a large country, that our national wealth is very great, and that the American people have shown an astonishing ability to absorb large items of cost without difficulty. Our national wealth is estimated by the Department of Commerce at \$258,000,000,000 in 1919 and about \$270,000,000,000 in 1920. Statisticians who have given the matter careful study feel that this estimate is too low, in view of the great increase in general values during the past four years, and that an estimate of \$300,000,000,000 is by no means too high. This wealth is increasing at an annual rate of from 10 to 15 billions, or more than half the value of the railways. Our consumption of sugar in 1919 was priced at about \$800,000,000. During the past few months the increase in sugar prices has added at least \$500,000,000 to the sugar bill of the American people, yet it has been absorbed almost without a protest. Alfred Reeves, general manager of the National Automobile Chamber of Commerce, estimates that the output of the automobile industry in 1919 was 1,891,929 motor vehicles, with a wholesale value of \$1,807,594,580. The output for 1920 is estimated at not less than 2,000,000 vehicles, at an average retail value of \$1,200, or an automobile bill for the American people this year of \$2,400,000,000. I instance these items of national wealth and national consumption merely to indicate the prodigious absorptive and purchasing power of the people of the United States and also to emphasize the point that our power both to produce and to consume is very great. We should not be afraid to take hold boldly of the transportation needs and permit revenues sufficient to make the railroads successful as going concerns.

Statement for Eastern Roads

An abstract of the statement by Daniel Willard, as chairman of the rate committee for the Eastern lines, is as follows:

A statement is attached giving the operating revenues, expenses, net revenues and net railway operating income of these carriers for the years 1916 to 1919, inclusive, as audited, and also for the year 1919, so adjusted as to reflect more nearly the present conditions—and shows as follows:

Calendar year	Net revenues	Operating ratio	Net railway operating income	Decrease compared with 1916
1916.....	\$570,377,155	67.41	\$464,434,104	.....
1917.....	497,477,306	74.21	368,231,549	D 20.71
1918.....	365,341,843	84.71	251,215,146	D 45.91
1919.....	297,706,179	87.87	182,238,706	D 60.76
1919 (as adjusted) ...	207,518,156	91.58	42,409,693	D 90.87

Taking 1916, which is selected because it is the last full year preceding the radical changes that have since occurred in both revenues and expenses, and comparing it with the year 1919, as audited, there is noted a change in the ratio of expenses to earnings from 67.41 in 1916 to 87.87 in 1919, and this notwithstanding the freight ton-miles handled decreased but 5.77 per cent, while freight train miles actually decreased 18.72 per cent, due to an increase in tons per train mile from 699 to 810. During the same period there was an increase in passengers carried one mile of 30.27 per cent, with a decrease in passenger train miles of 12.75 per cent. Ordinarily a condition such as indicated by these figures would have resulted in a substantially lower operating ratio, with a corresponding increase in net revenue.

This comparison clearly demonstrates that the increase in the basis of operating expenses has far exceeded the increase in the basis of operating revenues. The extent to which the increases in operating expenses have outstripped the increases in rates may be more definitely shown by applying to the business of 1916 the increased rates and charges and the increased bases of expense which actually obtained in March, 1920.

Careful estimates, based on the experience of the Pennsylvania, New York Central and Baltimore & Ohio Railroads, have been made, and the percentages of increased cost and rates so ascertained have been applied to the aggregate business handled in 1916 by the 38 Eastern systems, petitioners in the 15 per cent case. Statement attached shows in detail the combined income account so adjusted and the effect of increased rates and increased expenses as of March, 1920, applied to the business of the year 1916, which may be summarized as follows:

EFFECT OF INCREASED RATES AND INCREASED BASIS OF EXPENSES AS OF MARCH, 1920, APPLIED TO THE TOTAL BUSINESS OF THE 38 EASTERN SYSTEMS DURING THE YEAR 1916

Increase in revenues derived from:	
I. C. C. authority—15% case, etc.....	\$158,462,984
U. S. Railroad Administration—freight increase, 25%	337,007,051
U. S. Railroad Administration—passenger increase, 26.98%	86,803,036
I. C. C. authority—mail increase, 55%	12,554,149
I. C. C. authority—express increase, 10%	4,311,649
Miscellaneous increase—estimated	9,648,011
Total increased revenues as above.....	\$608,786,880, or 36.37%
Increase in expenses, taxes and rents:	
Rates of pay (per hour), 102.33%	\$692,786,352
Fuel, 154.78%	175,121,726
Materials, 74%	156,103,050
Miscellaneous (claims, freight car repairs, and joint facility operations, etc., estimated)	125,576,367
Taxes	49,318,862
Hire of equipment and joint facility rents	16,282,389
Total increase in basis of expenses.....	\$1,215,188,746, or 99.10%
Net increase of costs over increase of revenues	\$606,401,866

NOTE.—This computation does not reflect the full weight of increased basis of costs as it makes no provision for increases due to changes in working conditions.

It will be noted that while the expense basis since 1916 has been increased 99.10 per cent, the revenue basis during the same period has been increased but 36.37 per cent.

As a result the ratio of operating expenses to operating revenues, which in 1916 was 67.32 per cent, becomes 99.73 per cent when revenues and expenses are restated on existing cost and revenue basis. A comparison of these results with the actual results for 1919, as audited, indicates that the increase in passenger earnings and economies in operation incident to increased train load, direction of traffic, etc., made possible largely by unusual conditions resulting from the war, including the demobilization of the military forces, enabled the Railroad Administration to offset to a substantial degree the increased basis of expense shown above, resulting in an operating ratio of 87.87 per cent for the year 1919, as audited. Increased passenger business handled with less train mileage might account for one-half of this reduction. However, the results of 1919 operations are of little value as a basis for

future calculations, unless consideration be given to the circumstances under which the traffic (much of it incident to the demobilization of the army) was actually handled, and, further, unless the audited figures be so adjusted as to fairly reflect the elements of increased revenue and increased expense which it is now known will be effective in the future.

It has been suggested that the year ended December 31, 1919, was not typical because of the reduced traffic in the first quarter and because of the effect of the strikes in the steel and coal industries in the last quarter. While freight traffic did fall off considerably after the armistice in November, 1918, and recovered rather slowly, yet there was a constant and steady increase of such traffic from January on, reaching a maximum in October, the period from May to October being unusually high. The winter months, January, February and March, 1919, were also exceptionally mild and open.

During the steel strike, shipments of steel products were largely maintained from the accumulation of stock. The coal strike was of short duration and did not, upon the whole, seriously affect the earnings of the Eastern carriers. Moreover, the largely increased passenger traffic during the demobilization period, with a decreased train mileage, contributed an unusual measure of net earnings, possibly more than offsetting any adverse effect of fluctuations in freight traffic. The fact is that fluctuations in traffic are the rule and not the exception. A year during which traffic remained steadily at the maximum would not be typical.

However, because of the possible effect of the steel and coal strikes, these carriers have compiled figures for the 12 months ended October 31, 1919, based on a questionnaire submitted with detailed instructions to each carrier. The questionnaire and instructions, as well as all data upon which the compilation is based, are available. The figures both for the calendar year 1919 and for the constructive year ended October 31, 1919, have been adjusted and restated so as to illustrate as nearly as possible the results that might be expected were the business of the calendar year, or of the 12 months to October 31, 1919, to be done over again under the conditions affecting revenues and expenses which now exist, or will exist in the immediate future.

Taking the adjusted figures for the year ended December 31, 1919, the results shown indicate that under the changed conditions the operating ratio resulting from the identical business would be 91.58 per cent. To reduce this to a 75 per cent ratio, with the same volume of business, would require an addition to revenues of some \$544,000,000.

The average ratio of operating expenses to operating revenues of these carriers for the nine years previous to and including 1916 was 70.4 per cent, and it would seem that rates ought now to be so adjusted that the same standard of operating efficiency that obtained during that period would now produce approximately the same operating ratio. It is also noted that the operating ratio during the three-year test period averaged 69.5 per cent.

However, to overcome measurably the difference between the increased basis of earnings and the increased basis of costs, and also to adjust the return upon property investment, which in the "test period" was 5.32 per cent, to a basis of 6 per cent, would require for the Class I roads herein referred to, based upon the figures of the year ended December 31, 1919, adjusted, additional revenues equal to about \$494,000,000. If revenues were so increased the net return would be about \$139,000,000 greater than the average for the three years of the test period. Since June 30, 1917, the property investment of these carriers has been increased by more than \$1,076,000,000. The annual carrying cost of this investment averages at least 6 per cent, or \$64,000,000 in round figures, and there would be left about \$75,000,000 to aid in the reestablishment of credit as a basis for future financing and

for improvements, largely unproductive, and for possible contribution to reserve funds.

The average net railway operating income of the "test period" was adopted by the Congress, not as a measure of profit to the carriers while conducting operations at their own risk and bearing the burden of the financing necessary to provide improvements and extensions of facilities, but rather as the measure of a guaranteed rental to be paid by the government during a period when the government itself was to assume the risks of operating results and was to provide new capital necessary for additions, betterments and equipment.

The carriers must now reassume the burdens and risks of operation in a period of uncertain conditions affecting business generally. The demands for additional facilities and extensions were never more pressing than now. The cost of new capital is more than 7 per cent per annum even to those railroad companies whose credit is of the best.

The government Victory Loan bonds are currently selling on a basis of return in excess of 6 per cent. New industrial issues, with which railroad financing must compete, are offering returns from $7\frac{1}{2}$ per cent to 8 per cent in addition to liberal commissions for their sale and distribution, and underlying bonds of substantial railroads may be bought on a basis to yield 7 per cent and in some instances in excess of 8 per cent. Further, the European markets, heretofore available for American railroad issues, are now closed and are in fact absorbing our surplus funds, and this applies not only to Europe but to practically the whole world including Japan and the East.

In 1920 and 1921 from \$200,000,000 to \$250,000,000 per annum of maturing obligations of these carriers, now bearing low rates of interest (some as low as $3\frac{1}{2}$ per cent), must be taken care of, and in such financing the railroads must secure funds on the basis of the current cost of capital. Little can be hoped for in the immediate future in the way of lower operating costs. There is nothing in the existing situation to justify the expectation that either wages or material prices will soon be lower, while the public expects, and justly so, a constantly higher standard of service. The carriers will undoubtedly endeavor to increase their operating efficiency, and substantial results may be expected in that direction, but increased efficiency is largely dependent upon increased capital expenditures for improved facilities.

Clearly, unless increased revenues on a liberal basis are measurably assured, these carriers will not be able to meet their maturing obligations or secure additional capital on a basis such as the public interest demands, nor will they be able to render the transportation service necessary for the growing commerce of the country.

The preceding facts and figures indicate strongly that the railroads as a whole in the Eastern district will require as a minimum an increase in revenue, to be derived from increased rates and charges, of approximately \$550,000,000 per annum, in order that they may be able to furnish adequate service for the public. The additional amount necessary could be obtained by an increase of about 22 per cent if applied to all business, or about 30 per cent if applied to the freight traffic only.

Statement attached shows the estimated net operating income of all the carriers in the Eastern district in relation to property investment (based on the questionnaire data for year ended October 31, 1919) segregated as to Class I, II and III roads, and switching and terminal companies, which for 144 roads represented may be summarized as shown in the table on following page.

The estimated aggregate annual net railway operating income is related to the aggregate property investment account in the belief that as an aggregate amount this account is not excessive but more probably the minimum as representing true value, and, further, because it is the only estimate of

aggregate value practically available at this time, just as it was the only estimate of value available to Congress when it prescribed the percentage on aggregate value that should be taken as a fair return for the two years beginning March 1, 1920. The commission will, of course, make use of any other data it may find available.

Assuming, as we may and must, that the Congress clearly intended to lay down in the transportation act of 1920 a definite policy for the guidance of the commission, the guiding policy so prescribed will undoubtedly control the commis-

EASTERN DISTRICT

RAILWAYS OF CLASS I, II AND III ROADS AND SWITCHING AND TERMINAL COMPANIES, YEAR ENDED OCTOBER 31, 1919

Property investment	\$9,368,698,698	
Six per cent on property investment.....	\$562,121,921	
Net railway operating income, year ended October 31, 1919—adjusted	18,008,219	
Difference between adjusted net operating income and 6 per cent on property investment.....	\$544,113,702	
Total of all revenues.....	\$2,570,967,815	
Per cent on total revenues required to meet deficit under 6 per cent.....		21.16%
Total freight revenues.....	1,788,033,724	
Per cent on freight revenue required to meet deficit under 6 per cent.....		30.43%

sion's acts and decisions in the administration of all the provisions of the act, which include, viz.: "due consideration, among other things, to the transportation needs of the country and the necessity of enlarging such facilities in order to provide the people of the United States with adequate transportation."

Under the provisions of the transportation act of 1920 the duty has been imposed upon the commission of fixing rates and charges so as to yield as nearly as may be a fixed percentage return upon the aggregate value of the transportation properties devoted to the public use.

The information necessary to enable the commission to determine final aggregate value cannot be obtained within any reasonable time.

Elements and conditions affecting railroad operations and business generally have changed and are still changing so rapidly as to make the results of 1919 alone—even as adjusted—unreliable as a basis upon which to forecast the future.

Under these conditions it cannot be estimated (much less determined) with anything like accuracy what net railway operating income will be obtained during 1920 and 1921 from any given percentage increase in rates made at this time.

However, a failure to provide, as far as possible, net railway operating income sufficient to enable the carriers to re-establish their credit would defeat the clear intent of the act, because the carriers under such conditions would not be able to "provide the people of the United States with adequate transportation," and such a course would bring serious consequences to the whole public—including shippers and carriers alike.

It is submitted, therefore, that under the conditions above outlined the only secure course is for the commission to use all information available and to resolve all reasonable doubts in favor of the higher rates and charges shown to be necessary, for on that side lies safety.

Application of Southern Roads

The application for an increase of revenues in Southern classification territory, filed by C. H. Markham on May 3, is in part as follows:

The purpose of this application is to call to the attention of the commission the need of the carriers for an increase of revenue and to suggest to the commission the advisability and desirability of giving prompt consideration of these needs, with a view to so adjusting the rates and charges as to per-

mit the carriers to earn such revenue as is provided by law and as is commensurate with their requirements in order to make them efficient transportation agencies.

The group described and known as Southern classification territory constitutes a well-defined rate territory. The greater number of the railroads operating in this territory have their total mileage within the limits of the group. The commission has in numerous cases recognized that Southern classification territory constitutes a separate group of railways having a rate structure different from that which prevails in other parts of the country and with transportation, traffic and commercial conditions and problems which are peculiar thereto.

The carriers are now operating under rates which were in effect on the 29th day of February, 1920, at the end of the period of federal control. These rates do not yield sufficient revenue to pay an appreciable return on their investment over and above operating expenses, and indeed many of the carriers are not now earning their operating expenses. Owing to the tremendous increase in the cost of operation, which has not been accompanied by a corresponding increase in rates of transportation, these carriers will sustain exceedingly heavy losses unless their rates are substantially advanced. Most of the carriers are now operating under the government guaranty which will expire on September 1, 1920, after which it is obvious that they cannot continue as efficient transportation agencies unless there is a substantial increase in revenue. It is of the greatest importance that such action should be taken by the commission as will insure such an increase to become effective as soon as possible.

For the calendar year 1919 the Class I roads in the Southern region earned only 49.25 per cent of their standard return, the standard return being for those roads \$91,115,467, while the net federal income earned was only \$44,876,819. The carriers are now confronted not only with the increased basis of expenses under which they operated during 1919, but with still further increases resulting from advanced fuel costs, cost of material, wage scales already effective and other costs. Comparing the actual results for the calendar year 1919 with those for the year 1916, for Class I roads in the Southern group it will be found that while total railway operating revenues increased \$234,656,887, or 58.87 per cent, operating expenses increased \$294,492,274, or 110.88 per cent, and net railway operating income decreased \$76,026,522, or 62.88 per cent; and that while the operating ratio for 1916 was 66.63 per cent, for 1919 it was 88.44 per cent. It will be noted that this makes no allowance for increased taxes during said period.

The bases of operating expenses in effect in 1919 do not fully reflect the expenses now confronting the carriers, among other reasons because increases in fuel costs and wage scales, as well as in costs of material, reflected in the expenses for 1919, were not in effect throughout that year, but became effective at various dates therein, whereas these interests, as well as further and additional increases, are now in effect and will remain in effect during the year 1920.

For the 12 months ending October 31, 1919, statistics reflecting federal operations for the 31 Class I roads, 34 Class II roads, 49 Class III roads and 28 switching and terminal companies in the Southern group, constituting approximately 38,900 miles out of a total of 43,000 miles (total mileage in the group), show the following results:

Total operating revenues.....	\$577,635,493
Total operating expense.....	504,212,747
Leaving net operating revenue.....	\$73,422,746

After deducting railway tax accruals, uncollectible revenue and adjusting equipment and joint facility rents, the net railway operating income for the 12 months ending October 31, 1919, was \$51,208,428.

When the actual results for the 12 months ending October

31, 1919, are revised to reflect adjustments in revenue and expenses now in effect, but not in effect throughout the 12 months' period, so as to adjust the results of that period to present-day conditions, the final result is to reduce the net railway operating income from \$51,208,428 to \$16,269,429.

For the year ending October 31, 1919, the property investment represented by the book cost of road and equipment and materials and supplies for railways and switching and terminal companies in the Southern group (exclusive of the St. Louis-San Francisco Railway) was \$2,283,990,948. Exhibit "A," hereinafter referred to, shows that the sum of \$137,039,457 is required to pay 6 per cent on this property investment, as contrasted with the net railway operating income for the year ending October 31, 1919, after making final adjustments to reflect present conditions—namely, \$16,269,429. This deficit amounts to \$120,770,028.

It is apparent, therefore, that if the needed increase in revenue is to be derived from increases in freight rates and charges, then the same (both interstate and intrastate) must be advanced 30.95 per cent to produce the sum of \$120,770,028, the difference between adjusted net operating income for the constructive year ending October 31, 1919, and 6 per cent on the value of the property.

By the term "net railway operating income, adjusted," is meant that to the net railway operating income of the railroads in this group, as reported to the Interstate Commerce Commission, there was added or deducted an amount sufficient to make a constructive year at current rates of pay and prices of important materials, and there were deducted therefrom items included in the returns which applied to a period other than the year above stated.

The attention of the commission is called to the fact that under the transportation act it is discretionary with the commission whether rates shall be so adjusted as to yield 5½ per cent or 6 per cent upon the aggregate value of the property of the carriers held for and used in the service of transportation. At the present time the carriers find themselves unable to secure available capital at a rate of interest less than 7½ per cent. This rate of interest is charged even to railroad companies having good credit and offering sound collateral as security. It is evident, therefore, that the commission at the present time and under the present conditions should exercise its discretion so as to provide a basis of rates which will yield as much as 6 per cent upon the value of the property. Anything less than this will certainly not strengthen the credit of the carriers or permit them to secure sufficient capital to carry on the business of transportation in an adequate or effective way. A rate basis which yields less than 6 per cent will not give due consideration to the transportation needs of the country and the necessity under honest, efficient and economical management of enlarging the carriers' facilities so as to provide the people of the United States with adequate transportation. The carriers ask, therefore, that at least 6 per cent be adopted at this time by the commission as a basis of return, as permitted by the Transportation Act.

The carriers have used their property investment account as representing, for the purposes of this proceeding, the aggregate value of property of the carriers in the Southern group held for and used in the service of transportation. No other basis is at the present time available. This property investment account basis is believed to be substantially less than the aggregate value of the property in the Southern group, and in the consideration of the present problem this basis should be taken as the minimum representing the lowest value which can fairly be used for the purpose of establishing a rate basis to meet the present emergency.

The carriers have given consideration to what appears to them to be the best and promptest method, through the medium of increasing rates for transportation, of increasing

their revenue and of meeting financial necessities essential in the public interest to be provided for. It does not appear to them at this time practicable to increase the passenger rates, and they have, therefore, concluded to recommend to the commission that the needed additions to their revenue be obtained by increasing the rates for freight transportation. It is evident that the total interstate and intrastate freight revenue must be increased by an amount which will represent 30.951 per cent of the total freight revenue. It is believed, however, that the least disturbance in the distribution of traffic will result by giving special treatment to carload commodities on coal and coke, cement, cement plaster and plaster, building lime, sand, gravel, chert, crude clay, slag, shale, crushed, ground and broken stone, so that such rates may be increased in specific amounts according to the following table:

COAL AND COKE			
Rates less than....	\$1.00	to be increased	\$0.30 per ton of 2,000 lb.
Rates ranging from	1.00 to \$1.59	to be increased	.45 per ton of 2,000 lb.
Rates ranging from	1.60 to 2.29	to be increased	.60 per ton of 2,000 lb.
Rates ranging from	2.30 to 3.40	to be increased	.75 per ton of 2,000 lb.
Rates of	3.50 and over	to be increased	.90 per ton of 2,000 lb.

The amount of increase from the base group of any district to be the amount of increase from related groups in the same district.

CEMENT, CEMENT PLASTER AND PLASTER			
Rates less than....	\$2.00	to be increased	\$0.50 per ton of 2,000 lb.
Rates ranging from	2.00 to \$3.99	to be increased	.90 per ton of 2,000 lb.
Rates ranging from	4.00 to 5.99	to be increased	1.40 per ton of 2,000 lb.

If in the judgment of the commission these commodities should be subjected to a blanket increase, it is the opinion of your petitioners that a blanket increase of 90 cents per ton of 2,000 lb. will be necessary to yield on these commodities the percentage of increase recommended on other traffic.

BUILDING LIME			
Rates less than....	\$2.00	to be increased	\$0.35 per ton of 2,000 lb.
Rates ranging from	2.00 to \$3.99	to be increased	.70 per ton of 2,000 lb.
Rates ranging from	4.00 to 5.99	to be increased	1.00 per ton of 2,000 lb.

If in the judgment of the commission this commodity should be subjected to a blanket increase, it is the opinion of your petitioners that a blanket increase of 70 cents per ton of 2,000 lb. will be necessary to yield on this commodity the percentage of increase recommended on other traffic.

SAND, GRAVEL, CHERT, CRUDE CLAY, SLAG, SHALE, CRUSHED, GROUND AND BROKEN STONE

Rates less than....	\$0.75	to be increased	\$0.25 per ton of 2,000 lb.
Rates ranging from	.75 to .99	to be increased	.30 per ton of 2,000 lb.
Rates ranging from	1.00 to 1.49	to be increased	.40 per ton of 2,000 lb.
Rates ranging from	1.50 to 1.99	to be increased	.50 per ton of 2,000 lb.
Any rates of.....	2.00 and over	to be increased	31 per cent.

All other freight transportation rates, class and commodity are recommended to be increased 31 per cent.

To meet the existing emergency and enable the carriers to publish and make effective as promptly as possible the increases sought, or which may ultimately be allowed, it will be necessary for them to use special or blanket supplements carrying the percentage or other increases imposed.

They, therefore, now request the commission to waive temporarily the provisions of its rules governing the publication and filing of rate schedules insofar as may be necessary or appropriate to permit the filing in simplified form of schedules making effective the percentage or specific increases in all rates and charges herein sought, or such increases as the commission may finally approve in these proceedings, by means of blanket or special supplements to the tariffs to provide for cancellations, minimum charges and increases in rates and charges by the percentages or amounts sought in this petition or which may hereafter be fixed, allowed or approved by the commission in these proceedings.

To accomplish this and make effective the filing of schedules providing for the percentage increase in rates and charges and the specific increases upon certain designated commodities herein requested, it will be necessary for petitioners to have

and be accorded relief generally similar to that authorized by Special Permissions No. 45950, under date of May 27, 1918.

If this is permitted the carriers will undertake, with the utmost expedition, to substitute for these blanket or special supplements, tariffs in the ordinary form which will comply with the commission's tariff rules and regulations.

For the same purposes and to the end that the advances herein sought or such as may be finally approved by the commission may be made effective as expeditiously as possible, your petitioners respectfully request that an order be entered at the proper time by the commission modifying any and all of its outstanding and unexpired orders to the extent necessary, as was done by the order of the commission entered on May 27, 1918, upon the application of the director general of railroads, for the purpose of permitting the rates initiated in General Order No. 28 to be made effective.

Attached to this application will be found a statement setting forth additional reasons why the increase in revenue herein sought should be granted.

Attached to this application are exhibits which are asked to be taken as a part of this application.

In view of the present situation, as disclosed in this application and the accompanying exhibits, as well as further and additional facts and information which the carriers will be prepared to present when given an opportunity to do so, the commission is respectfully requested to give consideration to the situation in which the carriers now find themselves, to take cognizance of the present existing emergency and to establish or authorize rates so that the carriers in this rate group or territory will earn an aggregate annual net railway operating income equal as nearly as may be to a return of 6 per cent upon the aggregate value of the railway property of these carriers held for and used in the service of transportation. To this end the carriers offer to present such further additional information and lay before the commission such additional facts as the commission may suggest or require.

At the conclusion of the commission's consideration of this matter the carriers respectfully ask that rates be so adjusted as to yield to the carriers not less than 6 per cent upon the value of their property, through the advances herein requested or in such manner and form as the commission may seem right and proper.

In conclusion, the carriers desire specially to emphasize the need for the proposed increase in rates, to the end that they may not be deprived of needed revenue at a time when a grave emergency exists and when it is necessary that the credit of the carriers be firmly established, so that needed capital may be secured and the country be furnished with adequate transportation service.

Formal Application of Eastern Lines

Mr. Willard on April 26 also submitted a formal statement on behalf of the roads in official classification territory, which discusses the method of putting the increase in effect, in part as follows:

The territory commonly known as official classification territory has been since 1887 a well-defined rate territory, substantially differentiated from other rate territories in the United States by differences in industrial, commercial and transportation conditions. Within this territory there are a large number of railways and railway systems whose lines are confined thereto. There is very little overlapping of lines of railway more largely identified with other rate territories. It has been recognized by this commission in many cases as a separate territory within which rates may be and have been adjusted with relation to each other.

It is the judgment of the carriers that the increases in revenue necessary to meet present known expenses and provide a fair return should be secured from freight traffic. Because

of the complexities of ordinary freight tariff publication, such increases in rates can, generally speaking, be made within a short time only by the application of a percentage method of increase in rates. The carriers, therefore, propose that they be permitted to file supplements proposing percentage increases. If this is permitted the carriers will undertake, with the utmost expedition, to substitute for these percentage supplements tariffs in the ordinary form, preserving differentials in the usual manner.

On grain and grain products from points in central territory to points in Trunk Line, New England and Virginia territory, the tariff is comparatively simple, and it would be practicable to publish a specific tariff on this traffic in lieu of a percentage supplement. This, it is believed, would be in the public interest.

In proposing advances on bituminous coal, other than lake cargo and tidewater coal, the carriers propose a slight modification of the strict percentage basis for the purpose of preserving differentials from groups of origin. This method would involve, taking certain basing groups of origin, advancing the rates from these groups the same percentage as all other freight traffic and applying the amount of the increase thus ascertained in cents per ton as a specific increase from each related group to the same point of destination. In dealing with lake cargo and tidewater coal, the same percentage is proposed and the same method suggested, with certain necessary adjustments to preserve differentials.

In advancing rates on coke from the Connellsville region and related districts, the same method is suggested, using the Connellsville rates as the basis for advancing rates both eastbound and westbound.

In order to expedite this investigation and to arrive at a prompt decision, it is suggested that there should be co-operation between this commission and the various state commissions as to the matter of rates necessary to produce the revenue mentioned herein.

In conclusion, without prejudice to the right of any of them in due course to ask for special consideration of rates or divisions thereof, either generally or on particular traffic, the carriers respectfully propose that this commission designate Official Classification territory as a rate territory and establish or authorize such freight rates, not less than 30 per cent in excess of existing rates, as may be found to be necessary in order to assure to the carriers a return of at least 6 per cent upon the aggregate value of their property, as provided in section 15a (3) of the Interstate Commerce Act, and that such advance be permitted to be made by brief supplements to existing tariffs and to be made effective as soon as practicable.



Photo from Kadel & Herbert, N. Y.

Railroad Station at Cairo, Egypt

Democratic Committee Creates Transportation Bureau

WITH A VIEW to reducing to a minimum the congestion of passenger traffic which is apt to result in connection with the convention of the Democratic National Committee at San Francisco, Cal., a Transportation Bureau has been organized by the committee to be under the direction of E. K. Bixby, traveling passenger agent of the Pennsylvania Lines at Chicago. The organization of this bureau is a new departure in political convention management and its inception is due to the present shortage of railroad equipment, the excessively heavy passenger traffic which is now being handled by all western lines and the fact that several large conventions are to be held at approximately the same time. The object of the new bureau is to organize, concentrate and distribute the movement of the 10,000 delegates and visitors who are expected to attend the convention so that the transportation lines reaching San Francisco will be enabled to handle the transportation of those attending the convention with a maximum of safety and comfort.

Mr. Bixby has planned to produce these results by making arrangements with those planning to attend the convention, in order that the movement westward can be spread over a period of two or three weeks prior to the convention. This in turn will be accomplished by inducing those desiring to stop over *enroute* to visit various points of interest, to start their trip early and to do so on the going trip rather than on the return trip.

To avoid the confusion which always accompanies the return of national convention delegates—owing to the uncertainty of the day and hour of the closing and their inability to make arrangements—a plan has been worked out to care for those leaving at once by inaugurating special train service to principal points, leaving eight hours after the close of the convention and for which delegates can make advance sleeping car reservations and purchase tickets on their arrival at San Francisco. Advance reservations made for the return trip must be claimed 36 hours after the convention opens, and used within 8 hours after it closes.

Mr. Bixby's solution of this passenger traffic problem has met with the approval of the passenger traffic officers of the western lines which will bear the brunt of this movement and the co-operation of the Trans-Continental Passenger Association and the Pullman Company has been

promised him in the effort to eliminate the possibility of serious congestion.

The details of this plan were outlined in a letter addressed to E. L. Bevington, Chairman of the Trans-Continental Passenger Association by Mr. Bixby, in part as follows:

The following plan of operation has been proposed by those in charge of the bureau:

Through the various state organizations, the bureau will be furnished with the names of all delegates and alternates attending, the names of all organizations and their leaders, which information, in turn, will be at the disposal of the various lines interested.

A form letter will be mailed by the bureau to all delegates and alternates as soon as elected, urging upon them the necessity of making prompt arrangements for their trip, *both going and returning*, through the representatives of initial lines serving their community.

The names and addresses of all delegates and alternates will be furnished to the initial railroads interested, with requests that they instruct their agent to communicate with, and co-operate along these lines.

This information will be on file in the bureau's office so that the various western and trans-continental lines can obtain it for the purpose of communicating with the delegates to the convention in the interests of their respective roads.

A form postal card for return reservations will also be enclosed in the letter to the delegates, showing the route returning, and the point to which sleeping car reservations are desired, on special service to be operated by terminal lines from San Francisco, within eight hours after the close of the convention, but not later than 1 a. m. In case the lapsed time should be later, the departure will be postponed until 9 a. m. the following morning. This postal card is to be filled in, and forwarded to a representative of the terminal lines at San Francisco and all reservations made in this manner must be claimed within 36 hours after the opening of the convention, in order that preparations may be made for the return trip.

The Democratic National Committee has appointed a committee of five to arrange for the transportation of delegates and others attending the national gathering. This committee is composed of Charles Boeschstein, Illinois, Chairman; Isidore B. Dozweiler, California; W. W. Marsh, Iowa; Fred B. Lynch, Minnesota; and Patrick H. Quinn, Rhode Island.



Photo from "International"

Turkish Prisoners of War Boarding a Transport at Alexandria, Egypt, Bound for Home



Italian Soldiers on Guard at Milan During the Recent Railway Strike

New Track Scale Contains Many Novel Features

Includes Use of Levers of Double Web Section to Which
Loads Are Transmitted Through Center Lines

By L. R. Boyer

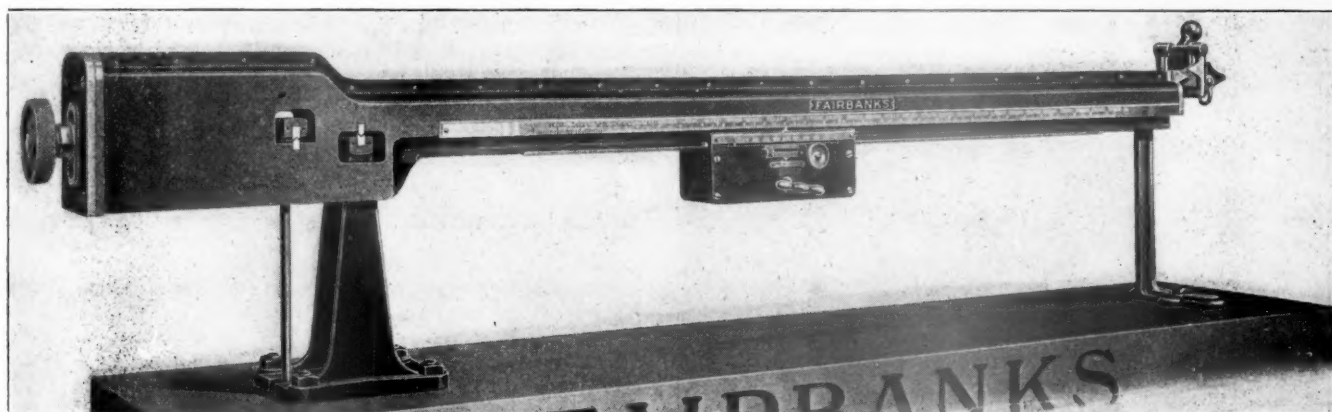
Sales Engineer, Fairbanks, Morse & Co., Chicago

A NEW TRACK SCALE embodying a number of new and exclusive features has been developed by E. & T. Fairbanks & Company, St. Johnsbury, Vt. This development was occasioned partly by the new specifications adopted jointly by the American Railway Association, the American Railway Engineering Association, the Railroad and Warehouse Commission of Minnesota, the National Scale Men's Association, the Bureau of Standards, and the Scale Manufacturers' Association. These specifications make necessary such changes in the design of scales on the market up to this time, that the new scales in accord with them are not interchangeable with the old scales. While changes were being made that were sufficient to destroy the interchangeability of the new and old scales, it was decided to go further and remove incongruities in design that were and have been present in scales ever since the first was built nearly ninety years ago.

The feature first noticed in this scale is the departure from

center line of the longitudinal lever. The same is true at the connection of the longitudinal levers to the transverse or fifth lever. The important effect of bringing this theory into actual practice is that the load on each knife edge is so applied and the levers are so designed that there is neither torsional strain in the levers nor any tendency to displace the levers from their bearings, nor to produce unequal wear upon different parts of the same bearing.

The scale is built in four sections, with a series of primary or main levers transmitting the load to longitudinal extension levers, which in turn transmit the load to a transverse extension lever which connects through a shelf lever to the beam. It is built in two capacities for light duty service, or such service where only a relatively small number of cars are to be weighed. These two capacities are 60 tons and 75 tons per section and in lengths of 50 ft., 56 ft. and 60 ft. effective weighing rail. For heavy service or where a large number of cars are to be weighed the scale



Fly Beam Introduces Novel Features

the use of the customary I-section levers, and going to the consistent use of the double web section throughout all levers of the scale. In designing scale levers it has been common practice to assume that the load is applied at the center of each bearing and is transmitted along the center line of each connected lever. The connections between levers of the standard I section must be made between pivots projecting from both sides of the levers. If the load on both sides is not equal, and it seldom is, or if there is the least warp or horizontal deflection of the lever, a torsional strain is produced which levers of I section are not calculated to resist. Loads applied to a track scale in ordinary car weighing are frequently greater on one side than the other, with the consequence that the pivots are unequally loaded and torsion set up in the levers.

In this new scale the initial load is suspended from the center of the main lever bearing, and from that point is transmitted through the true center line of the lever to each succeeding bearing. The tip of one main lever of each pair is directly over or below the true center line of the opposite lever so that the combined pull of both levers is in one straight line to the center of the bearing, which is on the

will be built in capacities of 75 tons and 100 tons per section, and in the same three lengths as above. The difference between the light duty and heavy duty scales is mainly in the loading per linear inch of knife edges, this being 5,000 lb. in the heavy duty scales and 6,000 lb. in the light duty scales. This difference in allowable loading and the allowance of a higher multiple main lever in the light duty scales serves to make somewhat lighter castings than are necessary in the heavy duty scales.

The main suspension consists of a T-head bolt of special bolt steel, carried at its head on a double web steel saddle resting on self-aligning steel blocks which bear equally upon two elements of the main lever load knife edges. The lower end of the suspension bolt is threaded and carries a circular steel nut. The upper face of this nut has circular milled recesses along three equally-spaced diameters. A steel trunnion block resting on the nut has milled cylindrical bosses on the lower side for the purpose of seating in any desired recess on the nut. When the trunnion, which has a fixed position, rests in the recesses of the nut, the combination is self-locking so that the nut cannot back off during the disturbance of the scale in regular weighing service. The

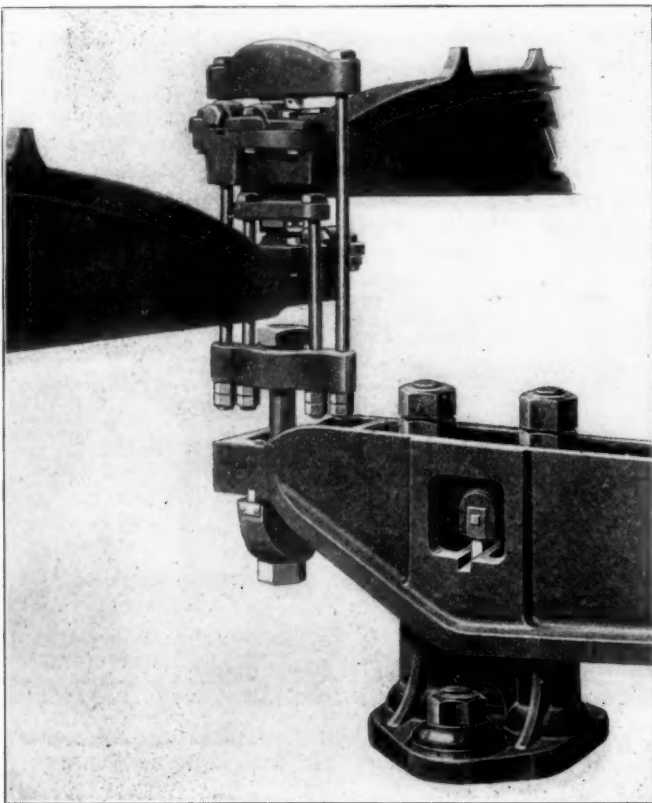
trunnion block has circular turned hubs positioned to run coincident with the center line of the main lever. The main girder chair has circular chilled seats to rest upon the trunnion block hubs. The combination of these elements allows universal motion of the scale platform in a horizontal plane without displacing the knife edges on their bearings.

The combination of the six-pitch thread on the suspension bolt and 1/6-turn of the nut provided by the milled recesses on the face of the nut provides a vertical adjustment by 1/36-in steps.

All connections between levers are made on the center lines of the levers. The main levers are connected to the extension levers by two bolts of special bolt steel. These bolts connect steel lined bearing blocks which engage the knife edges of the extension lever and the main levers. The bolts are threaded to provide vertical adjustment and have lock nuts to secure the position of each bearing block.

The connection between the end and middle extension

levers is fitted into machined seats. The edge of the pivot is hardened to resist scratching with a file while the back of the pivot is drawn relatively soft. The design of the levers is such that all pivots and their bearings are in contact throughout their full length. This means that there are no



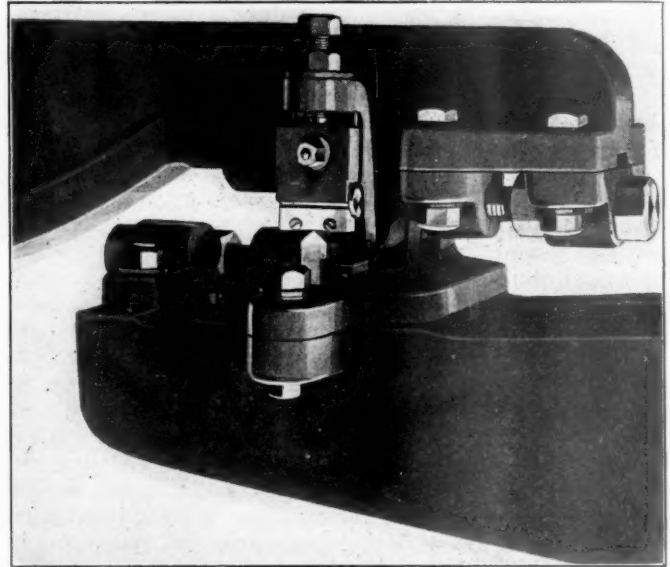
A Single Bolt Connects Longitudinal and Transverse Levers

levers is suspended on the knife edge of the middle lever. It contains three compensating steel bearing blocks, one resting on the knife edge of the middle lever, and the other two engaging the two elements of the knife edge of the end extension lever.

The longitudinal connecting levers transfer their load through a single bolt directly to the center of the transverse lever bearing. Independent vertical adjustment is provided for each of the longitudinal levers. This center line connection allows for the transverse or fifth lever to extend at any desired angle with the center line of the scale, providing a wide latitude in placing the beam without the use of extension levers.

Nose irons have machined tongue and groove engagement with the levers, insuring movement of the knife edges truly along the center line of the lever, and maintaining their parallel alignment. Such movement is controlled by non-corroding adjusting screws.

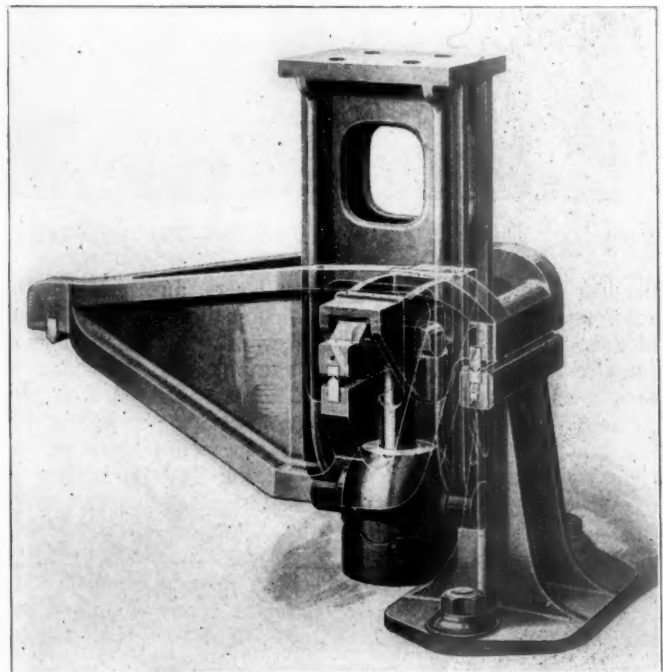
All pivots throughout the scale are machined all over and



Knife Edge Connection Between End and Middle Extension Levers

overhanging pivots driven through the lever which must be backed up by heavy bosses of metal.

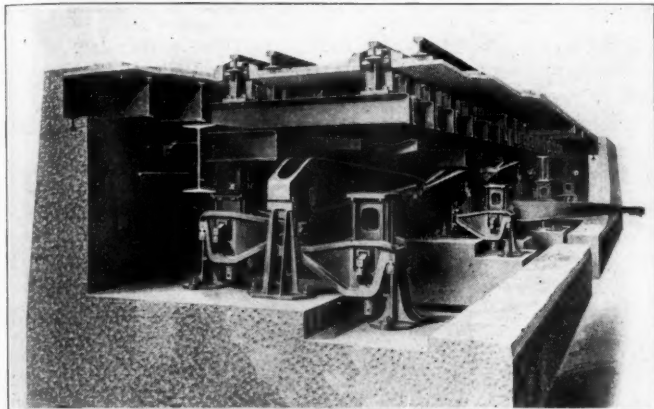
The beam, in keeping with the other parts of the scale, is novel in design. It is of cast iron with a cross section of inverted U shape. This shape, besides giving the maximum rigidity, furnishes a housing over the balance ball and track



Details of the Main Suspension

for carrying the poise. The notches are cut in a steel bar inserted in the bottom of the back web, which insures that no dirt can fall and lodge in them. The type for printing weights on tickets is fastened on the bottom of the front web.

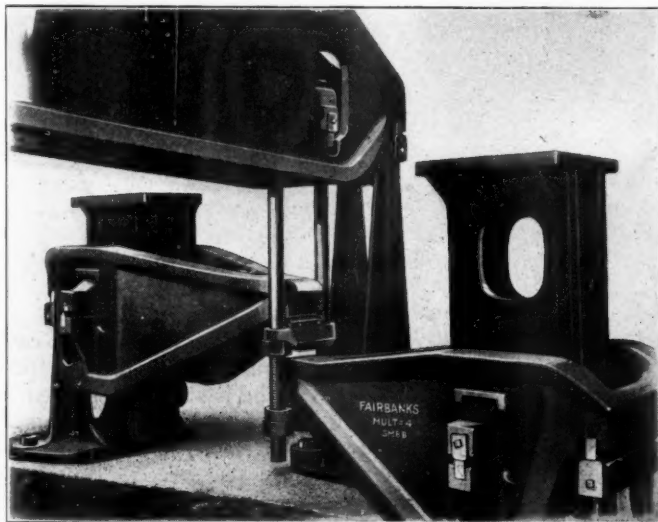
The center indicating poise suspended from three ball-bearing trolley wheels runs smoothly upon a machined track housed inside the beam. Its exact weighing position is determined by a positive locking device of 30 or more teeth engaging the same number of notches of the beam. This locking device or pawl moves in vertical guides arranged to be always tight, to insure a positive position of the poise.



The Interior of the New Fairbanks Scale

A convenient handle on the front of the poise serves to operate the pawl when turned in one direction and to print the tickets when turned in the other direction. The beam stand is of the upright pillar type with compensating steel bearing blocks machined in.

For both light and heavy service scales all parts are de-



Showing the Manner of Making Connections Between Levers

signed so that when loaded to rated capacity the stresses developed will not exceed those in the following table.

WORKING STRESSES IN POUNDS PER SQUARE INCH

Nature of stress	Cast-iron	Steel castings	Machin-ery steel	Struct-ural steel	Steel for knife edge and bearings		
					High carbon	Special alloy	Special bolt steel
Tension	1,500	8,000	8,000	10,000	24,000	30,000	15,000
Compression	8,000	10,000	8,000	10,000	24,000	30,000	.....
Transverse Bending—							
Tension	2,500	8,000	8,000	10,000	24,000	30,000	.....
Compression	8,000	10,000	8,000	10,000	24,000	30,000	.....
Shear	2,500	6,000	5,000	7,000	.....	.....	.....
Torsion	2,500	6,000	.....	7,000	.....	.....	.....

The loading for knife edges will not exceed 5,000 lb. per linear inch on heavy duty scales and 6,000 lb. on light duty scales. The tensile strength of special bolt steel used is not less than 120,000 lb. per sq. in.

Standard erection plans have been drawn which incorporate the best recognized practice as to all details of installation. Wide pits afford ample room for installing the scale correctly as well as for convenient examination from time to time. The design of weighbridge, the mounting of dead rail supports and fastening, the arrangement of weather guards, and other details have been worked out carefully, with a view to obtaining the most economical way, consistent with accurate performance and at the same time the lowest maintenance cost.

Commission Asks Co-operation of Carriers and Shippers

THE INTERSTATE COMMERCE COMMISSION on April 30 issued a public notice calling upon all carriers and shippers for co-operation in all practical ways to promote the greatest efficiency in transportation, declaring that present transportation conditions are such as to call for such endeavor on the part of both sides as was prompted by patriotism during the war. At the same time the commission asked the American Railroad Association, representing the carriers, and the National Industrial Traffic League, representing the shippers, to organize a joint committee to promote co-operative action for the improvement of railroad operating conditions.

Chairman Clark addressed the following letter to R. H. Aishton, president, American Railroad Association, and Guy M. Freer, executive secretary, National Industrial Traffic League:

"In view of present operating conditions well known to you both, the need, always present, of hearty co-operation on the part of those who use and those who furnish transportation is emphasized to the point of calling for such endeavor as was prompted by patriotic impulse while our country was in active participation in the war.

"As a means to this end you are each requested to immediately appoint a small committee, representative of your organization, the two committees to meet as a joint committee of the two organizations, and to promote co-operative action by both organizations throughout their membership looking to immediate relief in all practical ways, including:

1. Taking all steps agreed upon by the joint committee which call for no exercise by this commission of its powers under the car service and other provisions of the interstate commerce act.
2. Recommending to this commission any action so agreed upon which calls for exercise of its powers.
3. Referring to this commission matters, not so agreed upon, which the joint committee desires to submit for decision by this commission, or for exercise of its powers.

"It is hoped that your respective committees can be vested with appropriate powers to act or insure action commensurate with the need, and that the aid of shippers and their organizations and of the working forces of the carriers will be secured in full measure. We regard speedy betterment of operating conditions as a public duty of first importance."

The commission's notice to carriers and shippers follows:

"The greatest efficiency in transportation is the immediate need of the country to stop present and avoid future widespread economic loss.

"Your individual and concerted action is needed for prompt restoration of better operating conditions. All available equipment should be loaded and handled to capacity, where practicable, and every effort made to rapidly and progressively reduce accumulations.

"Your full co-operation and support is also invoked in giving effect to such steps as may be taken by the joint committee to be appointed under our letter of this date."

Two Interstate Commerce Commissioners Appointed

PRESIDENT WILSON on April 30 sent to the Senate nominations for two of the three vacancies on the Interstate Commerce Commission, Henry Jones Ford, professor of politics at Princeton University, to succeed James S. Harlan, whose term expired on December 31, 1918; and James Duncan, of Quincy, Mass., first vice-president and a member of the executive council of the American Federation of Labor and president of the Granite Cutters' International Association, for one of the new positions created by the Transportation Act, for the term expiring December 31, 1924.

Professor Ford is in his sixty-ninth year. He was born at Baltimore, Md., on August 25, 1851, was graduated from Baltimore City College in 1868, and until 1905 was engaged in the newspaper profession. He was an editorial writer on the Baltimore American in 1872 and was later city editor of the Baltimore Sun, managing editor of the Baltimore American, editorial writer on the New York Sun and on the staff of the Baltimore Sun. From 1885 to 1895 he was managing editor of the Pittsburgh Commercial Gazette; from 1895 to 1901 managing editor of the Pittsburgh Chronicle Telegraph, and from 1901 to 1905 editor of the



H. J. Ford

Pittsburgh Gazette. In 1906 and 1907 he was a lecturer on political science at Johns Hopkins University and since June, 1908, he has been professor of politics at Princeton University. He is the author of a number of books and articles on political science and other subjects, including "Woodrow Wilson, the Man and His Work," and "The Scotch-Irish in America."

James Duncan was born in Kincardine county, Scotland, May 5, 1857, and attended school at Aberdeen, Scotland. In 1873 he became a monumental and statue granite cutter. In 1881 he became secretary of the New York branch of the Granite Cutters' International Association and in 1895 he was made president of the union. In this capacity, ac-

cording to his biography in *Who's Who*, he led successfully an educational campaign and ultimately the great strike in the granite cutting industry for an eight-hour work day, in 1900. He became editor of the Granite Cutters' Journal in 1895 and since 1894 he has been a vice-president of the American Federation of Labor. He represented the American labor movement in the British Trades Congress at Bristol, England, in 1898, represented the American Federation of Labor at the International Secretariat Conference of Labor at Budapest, Hungary, in 1911, and was a member of the commission sent to Russia by President Wilson in the year 1917.

Although he has been a labor leader most of his life, Mr.



J. Duncan

Duncan is regarded as a strong representative of the conservative element in the councils of the American Federation of Labor, and it is understood that he is strongly opposed to government ownership of railroads. The executive council of the federation has never gone on record as endorsing the Plumb plan.

NEW ENTERPRISES, involving \$1,354,262,400 and numbering 1,262 companies, were incorporated under the laws of the principal states in April. This showing, according to the New York Journal of Commerce and Commercial Bulletin, compares with a total of \$515,665,300 in the same period a year ago, when 700 companies were organized.

I DO NOT CARE who owns or operates the railroads. I want the best service and most accommodating management for the lowest possible price. And I do not wish to be taxed to help pay for other people's rides or for transporting any other person's property. I am satisfied that I shall not get the best or most accommodating service from the government and that under government operation I shall be taxed to pay for carrying other persons and their property. Consequently I hope for a public opinion which will compel regulating bodies to prescribe rates which will pay the costs of transportation.—E. T. Adams, in the *San Francisco Chronicle*.

The Santa Fe System's Apprenticeship Course*

Department for School and Shop Instruction of Prospective Mechanics Thoroughly Established

By F. W. Thomas,

Supervisor of Apprentices, A. T. & S. F., Topeka, Kans.

THE APPRENTICE SYSTEM on the Santa Fe had its inception 22 years ago, at the hands of John Purcell, chief mechanical officer of the system, who was then master mechanic at Fort Madison, Iowa. Feeling the necessity of mechanics in the shops having a working knowledge of mechanical and free-hand drawing, and ability to read blue prints intelligently, from his own pocket he provided an instructor, furnished a room, drawing instruments, etc., free to the apprentices in the shops at Fort Madison. Years afterward, when the question arose of establishing a thorough and modern apprentice system on the Santa Fe, he lent his ability to establish it on a firm and lasting foundation.

The 26 months of Federal control and operation of the railroads and the efforts of the Railroad Administration towards unification of the roads, methods and men, made many changes in our apprentice system, but as we proposed gradually to work back to our former status and methods, much that follows deals with the scheme as it stood prior to the war—which state we hope soon to regain. During the early part of 1907, when we could not get enough mechanics at any price, the management said, "If we cannot hire them, we will make them." A commission was sent out to learn what schemes or systems were used by other railroads and manufacturers in training their apprentices. We made our report the last day of August, 1907, and our present apprentice system was established at Topeka on September 15.

School and Shop Instruction

There are two correlated features of our apprenticeship system, school and shop instruction. We have a room, preferably in a separate building, in the midst of our shops, fitted up with desks, tables, lockers, blackboards, drawing boards, instruments, models for drawing lessons, etc. This is established and dedicated to educational work. It is a place where the mechanics, foremen, officers and clerks can and do obtain information or help upon any mechanical device or question. The apprentices assemble in classes at stated hours, in this room, twice each week, and are paid their regular rate. We teach them mechanical and free hand drawing, sketching, etc., practical shop arithmetic, problems in mechanics, some descriptive geometry, algebra, etc. They study a treatise on their trade, something about the materials with which they work, a little railroad business letter writing, etc. Through the medium of charts, working models and reading matter, the different auxiliary devices, such as injectors, lubricators, safety valves, superheaters and air brakes, are studied. Each apprentice also familiarizes himself with the company rules and the Federal rules pertaining to his trade. The lessons, examination questions, etc., are all prepared by us and printed in our own print shop, and are representative of Santa Fe standards and practices. They are in loose leaf form and are up to date.

In the shop we have a man known as the shop instructor, one for each department or one for about every twenty-five boys. He is selected from the ranks, a man of character, skilled in his trade, patient in his teaching and capable of imparting his knowledge intelligently to the boys in his charge. He is responsible for the thorough instruction of

the boy, and jointly responsible with the apprentice school instructor for the physical, hygienic and moral instruction or welfare of the apprentice. He is not responsible for the output of the shop, though he is responsible for the maximum effort of the boy. He sees that each boy gets a fair and equal opportunity, and he is particularly charged with responsibility for the careful training of the timid or backward boy. The shop instructor ranks along with the department foreman, and both report to the same shop officer. In the temporary absence of the foreman, the instructor takes his place. While much of this monitorial and parental watchfulness was abrogated by the government during its control of the railroads, we still exercise some of it and hope for the day of its complete resumption.

We have in our shops a body known as the Apprentice Board, composed of the general foreman, department and gang foreman, the shop instructors and the school instructor. Each apprentice, either in person or in name, is brought before this board every six months during his entire apprenticeship of four years. All matters in reference to the talent or fitness of the boy, discipline, transfers, etc., are investigated and handled in a recommendatory manner to the ranking mechanical officer of that shop for his action, and finally to the supervisor of apprentices.

I do not know of anything that has been so fruitful of good results as this apprentice board. It makes each shop officer take an active individual interest in the boy. He is called on to pass judgment on the boy, and knows he must find out all about him. It has also created an interest in the other shop employees by the foremen, and a desire upon the part of each foreman to treat all his men with that interest and feeling which begets loyalty and service.

At the larger shops affording ample facilities, a fixed schedule of work is outlined for each apprentice to pursue. This is so arranged that he completes the course in three years and six months, leaving six months for review or specializing. When he completes his apprenticeship he is given the standard rate of pay and, before the advent of seniority he was assigned to a class of work for which he had shown himself best adapted.

While the Railroad Administration, in its efforts at standardization and unification, took away much that was attractive, interesting and beneficial, greatly lowering the morale, it still left much of value and, at the end, or near the end of federal control, it ordered the establishment of schools similar to those on the Santa Fe for apprentices on all roads, or the co-operation of the railroads with the vocational training of the public schools.

College Men

The national agreement made by the director general with the shop crafts, makes no provision for special apprentices, a very unfortunate omission. We had, before it was abolished by the Federal authorities, a well defined and productive course for these young college men, and a still shorter course for the brighter young men who had completed their apprenticeship. The object of these courses was to select and develop material for positions of responsibility. The young college man was required to work one year on machines, one year in the erecting shop, and the third year, known as "special course," was spent in car shop, boiler

*Abstract of a paper read before the Western Society of Engineers, Chicago, May 3, 1920.

shop, roundhouse, with traveling engineer, and on inspection. With these went a course of reading and study, the preparation of a thesis on the department in which he was working, and a monthly letter giving details of the work he had done and any constructive criticism he had to offer. This course produced ample material from which to select our supply of shop and staff officers. Not all, of course, made good, but as the course was so exacting and exhaustive, it gave us a very close knowledge of the young man's calibre and makeup. Better have him fail in the preparation than to fail after being placed in a position of responsibility.

Personal Interest in the Apprentices

When an apprentice completes his course and is assigned to regular work our responsibilities do not end. He may be transferred to an adjacent shop, or one a thousand miles away. If so, his name and personal file is sent by the local instructor to the instructor where he may be sent. When he arrives at his new location, about the first person he meets is the local apprentice instructor. He will always be sure of one person who will give him a friendly welcome, assist him in getting located, and put him next to the ways of the place.

If the graduate leaves the service, we still keep track of what he is doing, the pay he receives, and the kind of people with whom he is working. We know where practically all of the young fellows who have left us are located.

Following up the young man after he has been promoted to some position of trust, is one of our particular features. His first position is the most trying one of his life. He needs a balancing hand more than at any other time. He needs some one to hold him in check, to push him on at another time, to encourage him in his hour of despondency. One of our master mechanics told me that when placing one of his graduates in charge of his roundhouse, he spent eight hours per day the first week, getting the young fellow started right. His reward was one of the best roundhouse men on the system.

What we have done others can do. There is nothing complicated about the system. It has required the entire time of its directing officer, it has required the full approval of our chief executive officers and it has had the full co-operation of all our employees, officers and men. The apprentice system on the Santa Fe is as much a part of the mechanical organization as is the smith shop.

Results

This is not a cold-blooded proposition. There is nothing cold-blooded or cold calculating about it. It is no longer the style on the Santa Fe to fire a man because he may have slipped once. It is no longer permissible to discharge a man to cover up the failure of a supervising officer. We want these young men to feel secure so long as they do their part and make an honest effort to give a day's work for a day's pay.

Our present apprentice system has been in vogue thirteen years. From 345 boys in 1907 the number has grown to 1,303 today. Starting out with machinist apprentices, we are now giving instruction to boys in nine trades. Our apprentice system, the past ten years, has furnished the road with all of its shop officers. It has not been necessary to go outside for a foreman, or master mechanic. It has provided all the draftsmen for our drawing rooms and men for staff duties. We have young men educated and trained, waiting for any emergency or any job that may turn up.

Up to May 1 we had graduated 1,400 skilled mechanics. Of this number, 60 per cent, or 840, are in service today, and 200 have been promoted to some position of responsibility. Topeka shops, the largest on the system, had not, in 1917, employed a skilled mechanic from the outside for over two and a half years. In habits and character, these mechanics

are of the best. Their homes are on the road, their friends and companions are there. They are more than shop men; they are good citizens.

The advantages gained from our apprentice system may be summed up briefly:

- 1.—Ample supply of skilled mechanics for our shops, mechanics who are thoroughly skilled in our ways and methods.
- 2.—Stabilizing employment. The recruits being at home and at work under favorable conditions, don't care much about roaming around.
- 3.—Material from which shop officers and mechanical staff may be recruited, young men with whom we are thoroughly acquainted and who have been especially trained and tried out.

We have not accomplished this in a day.

Yet the growth in numbers, in quality of men, and in instruction has been so gradual that we do not realize what we really have accomplished.

The Santa Fe System Apprenticeship Course

GRADUATES OF THE SANTA FE APPRENTICESHIP COURSE WHO HAVE RECEIVED PROMOTIONS TO

Division and general foremen.....	10
Roundhouse foremen	18
Assistant roundhouse foremen.....	47
Machine and erecting foremen.....	27
Boilermaker foremen	10
Car foremen	2
Miscellaneous foremen	3
Apprentice instructors	38
Material inspectors	4
Engine inspectors	13
Boiler inspectors	5
Car inspectors	7
Miscellaneous	16
Total	200

Discussion

The paper brought out a lively discussion by a number of supervisors of apprenticeship courses, covering both the manufacturing and printing trades. It was the consensus of opinion that the fundamental principles underlying the Santa Fe apprenticeship system are correct, and are universally applicable with such changes in the details of the organization and methods of instruction as are dictated by differences between trades, conditions surrounding the organization of the plant and the nature of the product. Two fundamental points were particularly stressed, the absolute necessity of subordinating the output of the apprentices to proper instruction and knowing how to select boys naturally adapted to the work of the trade for which they propose to train. To meet the first of these conditions the Western Electric Company, for the purpose of training toolmakers, has equipped a special training shop in which the boys receive the greater part of their shop instruction before they are allowed in the shop on production work. The output of the instruction shop is utilized after being subjected to rigid inspection, but the training shop enables the boys to receive careful instructions without interfering with smoothness of operation of the production departments.

A number of questions were asked as to the ability of the organizations to retain their apprentices at the low apprentice wage scale generally prevailing, and as to the seriousness of the loss of apprentice graduates from the organization. Mr. Thomas stated that about one-third of the Santa Fe apprentices are expected to complete the course. The Western Electric Company's course for toolmakers has suffered a loss of apprentices of only 25 per cent in four years. None of the courses represented at the meeting has experienced any difficulty in securing applicants either in smaller communities such as are largely involved on the railroads or the city of Chicago itself. The Western Electric Company has 10 applicants for every opening. The general experience has been that, when graduated, the boys stick. At the present time, the Santa Fe still has 61 per cent of its graduate apprentices in its own service; 71 per cent of the graduate toolmaker apprentices of the Western Electric Com-

pany are still in the service of that company; 70 to 75 per cent of its graduate apprentices in the printing trades are still in the services of R. R. Donnelley & Sons (Lakeside Press), Chicago. This company graduated 24 apprentices in 1915, all of whom are still in its service.

In discussing the ratio of apprentices to mechanics in the various trades, it was brought up that a check of 50 manufacturing companies and 50 railroads indicated that a ratio of one apprentice to each 2.3 mechanics is required to maintain a supply of mechanics equal to the demand, taking into consideration the fact that a growing industry doubles the number of men employed approximately every ten years.

In considering the cost of establishing an adequate apprenticeship course, the by-products of the course must be considered. These are the production of the apprentices, the trained material from which to select supervisors and, in the case of the railroads, the school and shop instructors, the former performing functions which would otherwise require a man, such as taking care of shop blue prints, shop sketchings, etc., and the latter acting as aid to the regular supervision. The experience of the Western Electric Company has been that its course has not cost a cent.

Augereau's Wireless Cab Signal

THE STATE RAILROAD ADMINISTRATION of France has made quite extensive experiments with an audible cab signal controlled by Hertzian waves—a "repeater," as the Frenchmen term it—to call the attention of the engineer when he passes a caution signal which is set against him; and the experiments have proved so satisfactory that the government plans to instal the apparatus on long sections

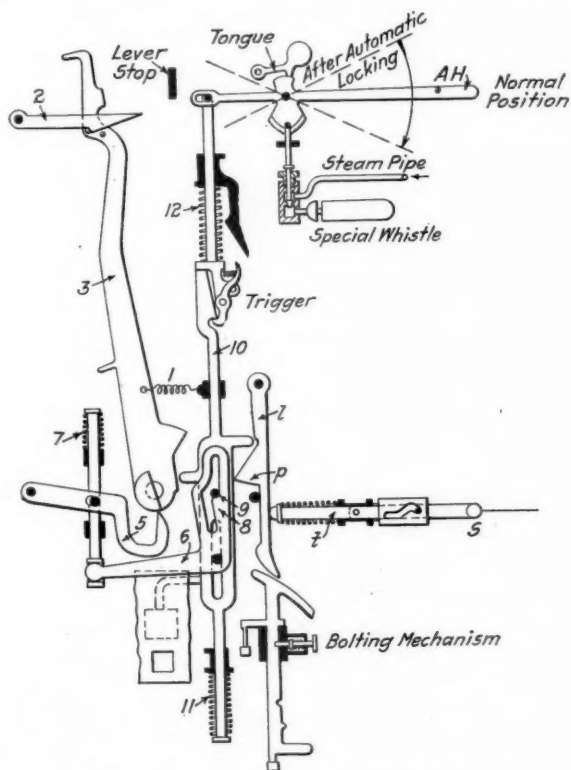


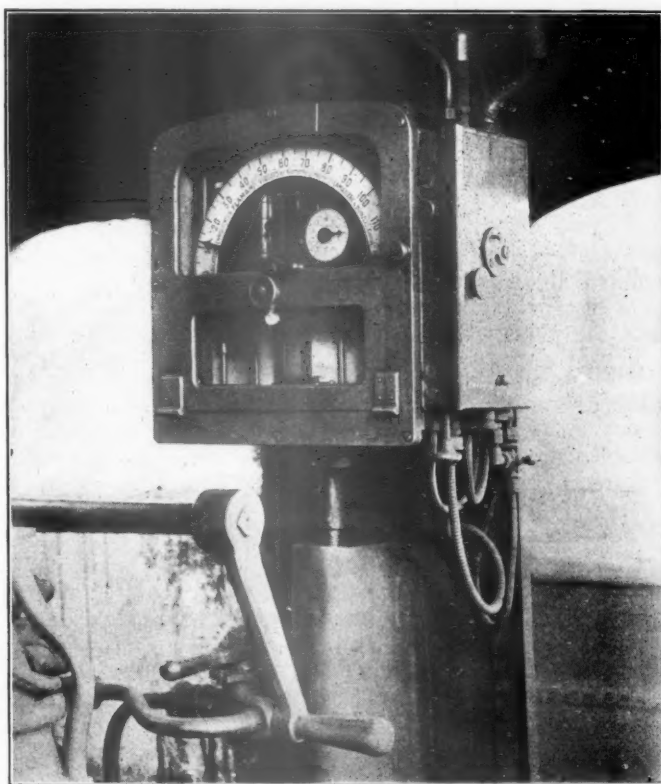
Fig. 1—Augereau's Wireless Cab Signal

of its railroads and to equip a large number of locomotives. This announcement of proposed extensive installations is not yet officially confirmed, but as the system is of interest on its own account and as the experiments have been continued over a series of months we give herewith a brief description of the apparatus. The installation is on the line running from

Paris, southwest, 48 miles, to Chartres. Nearly or quite all of the distant signals between Trappes and Maintenon, on this section, a distance of about 15 miles, are fitted with the "wireless."

The apparatus is the invention of a French engineer, Mr. Augereau, and the essential features are similar to those which were used for wireless communication by aviators during the war. At the roadside station a Ruhmkorff coil, energized by a small battery and acting by means of a buzzer, produces Hertzian waves which, by acting on a coherer on the locomotive, cause the sounding of a whistle in the cab. The antenna at the station and that on the locomotive are each about 4 ft. above the level of the rail, and are of sufficient length, parallel to the track, to function satisfactorily on trains moving at any speed. The roadside battery is active only when the visual roadside signal is against the train, and only while a train is passing, track instruments being used to give the train this control.

The arrangement of the apparatus on the locomotive is illus-



Flaman Speed Recorder, Used with Augereau's Wireless Cab Signal

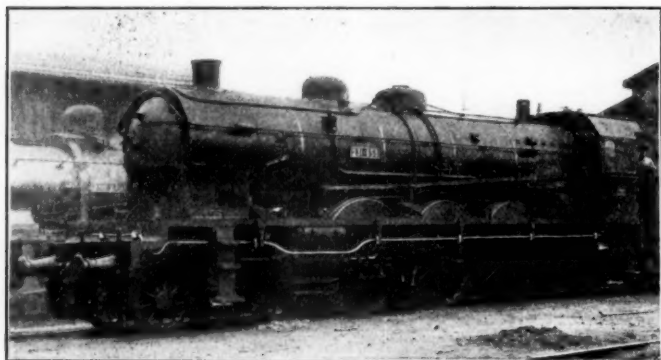
The Scale Shows Kilometers Per Hour

trated in fig. 2. The circuit from the battery energizes the solenoid, 1, sufficiently to lift its core whenever the coherer is traversed by the current coming from the antenna. The antenna consists of a copper tube on the side of the locomotive, as shown (white) in the photographic illustration. (In France trains on double-track roads use the left-hand track, and therefore this antenna is on the left side of the engine; but to provide for running locomotives backward antennae can be mounted on both sides.)

The induction coil at the roadside station, with a primary current of 8 volts, is capable of producing a spark about one inch long. The secondary coil has one end connected to the ground and the other to a buzzer and to the roadside antenna, as shown. This antenna consists of a copper wire about 16 ft. long.

The roadside battery, 2, has one pole grounded and the

other is connected to a wire extending through the induction coil to an insulated section of rail, as shown. The commutator placed between the battery and the ground is controlled by the visual signal, which makes or breaks the ground connection, the current flowing only when the signal is set against approaching trains. With the signal in the adverse position and the insulated rail grounded (by the presence of wheels upon it), the current from the battery traverses the primary coil; the induced current then actuates the buzzer and the Hertzian waves are produced. As before stated, these latter



Antenna on Locomotive for Augereau's Wireless Cab Signal

continue only so long as the train is passing a signal. As soon as the wheels of the locomotive have passed the signal the roadside circuit is broken by means of a treadle, which is depressed by the wheels.

On the engine, the resistance of the coherer normally opposes the passage of the current from the engine battery, E B; but on passing the roadside antenna this resistance

Each operation of the wireless signal is recorded by means of a cam forming a part of the lock, which gives a slight movement of the stylus against the paper tape of the speed recorder. At the end of the run the inspector at the engine-house finds this record in the form of a short, straight line cutting at right angles the speed-record curve. This indicates that the whistle was in working order. When the engineman sees a signal set against him it is his duty to give the stylus a movement in the other direction (by moving lever A H downward), and the marks so made, different from those made by the roadside impulse, afford evidence that the engineman was attending to his duty.

Steel Merger in Canada

CANADIAN NEWSPAPERS of May 3 report that Colonel W. Grant Morden, representing English interests, has announced the consolidation of nine steel, coal, shipbuilding and transportation companies of Canada into the British Empire Steel Corporation, with a capital of \$500,000,000. The capital stock of the corporation will be divided as follows: Seven per cent cumulative preferred, \$50,000,000, of which \$37,000,000 is to be issued; 8 per cent cumulative preferred participating, \$100,000,000, of which \$25,000,000 is to be issued; 7 per cent non-cumulative preferred, \$150,000,000, of which \$68,000,000 is to be issued; common, \$200,000,000, of which \$77,000,000 is to be issued.

Included in the consolidation are the following companies and their subsidiaries: Dominion Steel Corporation; Nova Scotia Steel & Coal Company, Ltd.; Canada Steamship Lines, Ltd.; Canada Foundries and Forgings, Ltd.; Maritime Rail Company; also the Collingswood Shipbuilding Company,

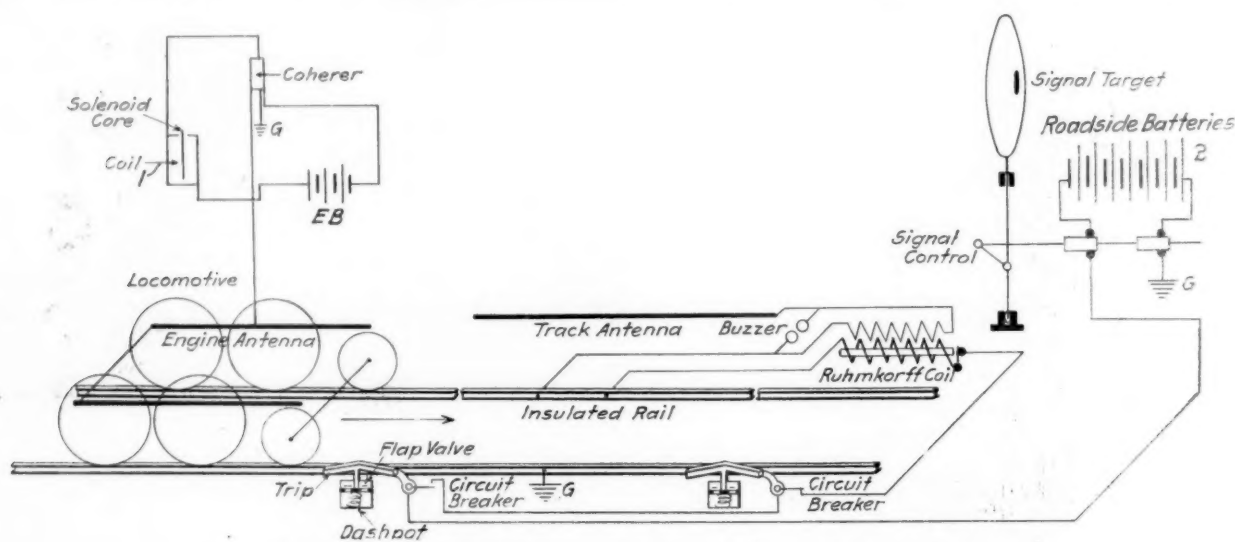


Fig. 2—"Wireless" Cab Signal Tried on the State Railroad of France

diminishes and the current then lifts the core of the solenoid. This movement releases a lock, fig. 1, which is enclosed in a box fixed to the side of the speed recorder, as shown in the illustration. This lock controls the valve of the cab-signal whistle (which is mounted in the front of the cab.) The blast of the whistle continues until the engineman, by restoring lever A H to normal position, stops it.

Referring to fig. 1, the pawl, 2, raised by the electro magnet, releases lever 3, and this is pulled to the right by spring 1. The locking mechanism is worked by springs 7, 11 and 12. In this operation rod 10 moves down and sounds the whistle. The stylus, s, is moved by the pushing of lever 1 to the right.

Ltd.; Port Arthur Shipbuilding Company, Ltd.; Halifax Shipyards, Ltd.; and the Davie Shipbuilding and Repairing Company, Ltd. The officers of the new corporation will be men now prominent in the constituent concerns. The London advisory board of the corporation, Colonel Morden said, will include Sir William Beardmore, chairman of Wm. Beardmore & Co., Glasgow; Henry Steel, chairman of the United Steel Companies of Great Britain; Viscount Furness, chairman of the Furness group of English steel industries; Benjamin Talbot and J. P. Mangan, directors of the Furness companies; Maj.-Gen. Sir Newton Moore, formerly prime minister of Western Australia; and Sir Trevor Dawson, deputy chairman and managing director of Vickers, Limited.

Ministry of Transport Fiscal Year Estimates

A Total of £1,433,642 Required—An Outline of the Action to Be Taken with British Railways

LONDON.

THE BRITISH MINISTRY OF TRANSPORT has recently issued a statement in which it is stated that the requirements of the Ministry for the current fiscal year will be £1,433,642, which is subdivided as follows:

(1) Salaries, wages, allowances.....	£416,592
(2) Miscellaneous charges.....	28,650
(3) Grants to transportation schemes amounting to.....	1,000,000
(4) Government pool of motor passenger cars.....	54,500
(5) Advances to electricity commissioners.....	25,000
	£1,524,742
Deduct appropriation in aid.....	91,100
	£1,433,642

In addition to the general expenses of the ministry set out above and amounting to £1,433,642, a net sum of £23,000,000 is provided in the railway agreements vote. Of this, £22,000,000 is for arrears of maintenance and renewal works which have accrued during the war and for interest* on capital expenditure, while a net sum of £1,000,000 is for purchase of rolling stock from the ministry of munitions for the government pool. These amounts compare with a total of £60,000,000 provided for the railway agreements vote last year.

The railway agreements vote arises out of the arrangement with the railways during the war. In this general agreement the arrangement with regard to government liabilities for deferred maintenance is set out, as follows:

"... if in the special circumstances obtaining during the period of control, a railway company has postponed works of maintenance (i.e., the repairs and renewals of its works and plant), which in ordinary course would have been executed within the period and their cost charged as working expenses, the cost of such works, when they come to be executed, is a fair charge against the Government."

The shortage of labor and material during the war, the work undertaken by the railway companies in manufacturing for war purposes, and the need for keeping expenditure down to the minimum compatible with safety has resulted in the accumulation of a heavy arrears of maintenance and renewals, both as to permanent way and to rolling stock.

The following is a brief account of what action is being taken in regard to the railways by the Ministry of Transport:

Finance.—Since the amount due from public funds depends upon the earnings of the railways the minister is directly concerned in the administration of the companies. To safeguard the exchequer, while leaving the companies discretion in directing their own financial policy, constitutes a problem of administration which the ministry is working out in close consultation with the companies. This involves the examination of a gross annual expenditure at the rate of approximately £200,000,000 per annum. The necessary staff of expert railway accountants has been appointed in connection with these duties.

All proposed capital expenditure of the railway companies is most closely examined by the engineering, traffic, finance and other departments of the ministry and submitted to the Treasury before authority to claim interest from the government is given. In the course of this examination the technical departments are able to suggest alterations and improvements with a view to reducing expenditure, in which direction important results have been achieved. The technical departments are able to guide development in the right direction by levelling up to the best practice, and to ensure that no op-

portunity for standardization is lost. This is of particular importance in connection with the many proposals for electrification now being received, to deal with which a special expert committee has been set up.

Rates.—Having completed their enquiry into the temporary increase of rates necessary to restore the financial equilibrium of the railways the rates advisory committee is now embarking upon the larger and more important question of a thorough and scientific revision of the basis of railway rates and charges. Such a revision is overdue both in the interests of the traders and the railways.

The present parliamentary classification of goods for the purpose of conveyance charges is at least 30 years old, and although an endeavor is made to keep the working classification up to date, there are, undoubtedly, certain anomalies owing to changed conditions of trade, new uses of materials, etc.

In originally determining the class, it is evident that the value of the goods was largely taken into consideration, and although this should probably enter into the question, it is for consideration whether more weight should not be given to the cost of the service and the conditions under which the traffic is conveyed as to quantity, bulk, regularity of flow, method of packing, etc.

Class rates have been provided for the various classes on a more or less uniform scale throughout the country, but not more than 25 per cent of the total business is carried at these class rates, the remainder being carried at what are known as "exceptional" rates, which are lower than the class rates.

The general result has been that a most complex system of varying rates has been built up, there being probably hundreds of millions of different rates on the railway companies' books, with inevitable anomalies.

Statistics.—British railway statistics were deficient in many important respects before the war, and the restoration and extension of statistics was an essential preliminary to securing economy in operation and construction and to the systematic revision of rates. The necessary organization was accordingly set up and arrangements were made to institute for each railway system as many of the new returns as practicable from the beginning of January, 1920, including ton-mile statistics (for coal and coke, for other minerals, and for general merchandise separately), tons and receipts of principal traffic, commodity ton-miles, car-miles, train and engine hours and train and engine mileage in greater detail than hitherto.

The new statistics provide for the tons and receipts of 72 main commodities, and the traffic to be included under each commodity heading have been classified in order to secure uniformity of practice throughout the country.

Ton-miles in respect of each of the commodities are to be compiled for one four-weekly period during the year. The average distance the traffic was conveyed will then be ascertained by dividing the ton-miles by the tons carried, but the information will also be tabulated to show the quantity of traffic conveyed each distance, and the receipts therefrom. These figures, used in conjunction with the tons and receipts for the whole year, provide a valuable guide for estimating the probable financial results of any contemplated revision of rates, and so afford a sound commercial basis for the enquiry into the whole system of railway rates and charges which is now being undertaken.

The information available in respect of train miles has

*For any capital expenditure made by the railway companies the government agreed to pay the interest charges inasmuch as the railway companies would not derive any financial benefits because of the guaranteed return.

previously been confined to "Passenger," "Freight," "Shunting," and "Other miles." The new statistics provide for the separation of the mileage incurred on week-days and Sundays, and for a further analysis of "Other miles" to show separately "Assisting miles required," "Assisting miles not required" (i.e., engines working home on trains, etc.), "Departmental miles," and "Light miles."

Labor.—Not only have all the principles regarding standardization of wages been settled, but machinery has been devised which will enable any adjustments which may be required in the future in railway wages to be made apart from the ordinary administrative work of the Department. The scheme consists of a Central Wages Board of five representatives of the companies and five representatives of the men, to whom disputes will be referred. Should they be unable to reach an agreement reference will be made from them to the National Wages Board, consisting of four railway managers, four railway workers, and four users of railways (one nominated by the parliamentary committee of the Trades Union Congress, one by the Co-operative Union, one by the Federation of British Industries, and one by the Associated Chambers of Commerce), with an independent chairman appointed by the government. It is agreed that no strike shall take place until one month after a reference has been made from the Central to the National Wages Board. Local machinery is also to be set up to deal with local matters.

Traffic Congestion.—With a decreased number of locomotives and freight cars in traffic, and with a shorter working day, the railways are actually coping with a larger volume of work than in 1913.

The total number of passengers carried by the 16 principal railway companies (exclusive of season ticket holders) during the year 1919, was 974,259,966; an increase of 156,278,127 passengers, or 19.1 per cent as compared with 1913.

The number of season ticket holders, equated to annual tickets, conveyed during the year 1919, was 735,172; an increase of 245,692 or 50.2 per cent as compared with the year 1913. These season ticket holders are responsible for from 100,000,000 to 150,000,000 additional journeys, so that the annual carriage of passengers is nearly 300,000,000 more than in 1913.

Freight revenue on the controlled railways during the past year was nearly £5,000,000, or 7 per cent more than in 1913, on the basis of the same charges and excluding government traffic amounting to £21,000,000, of which probably about one-half was freight traffic. The total freight receipts were, therefore, approximately, 20 per cent in excess of 1913. This indicates that, even after allowing for a change in the class of goods carried, the average distance traffic was conveyed has been increased, thus involving a greater tax upon the carrying capacity.

The stock of locomotives available for traffic on the 16 principal railways on June 30, 1919, was 17,743; a decrease of 1,186 as compared with the number available at the end of 1913; this decrease was reduced to 293 locomotives on December 31, 1919, brought about by a deduction of 447 locomotives from the number under or awaiting repair, 429 locomotives lent by the government, and 17 added to the companies' stock.

Since December 31, twenty-two additional government locomotives have been hired to the railways, who are making strenuous efforts to reduce the number under and awaiting repair as quickly as possible, and to increase the rate of construction of new locomotives.

These 16 principal companies in Great Britain had actually in traffic on June 30, 1919, 650,606 freight cars, or 45,315 less than on December 31, 1913. By September 30 this deficiency had been reduced to 43,486, and by December 31 to 19,391. Considerable pressure had been put upon the railways to increase the construction of new freight cars; on

June 30, 1919, there were 17,141 freight cars on order at railway companies' shops and 3,995 on order from outside firms, a total of 21,136. On December 31 these orders had increased to 21,306 at railways' workshops and 11,542 from outside firms, making the total 32,848 on order, or an increase of 11,712 since June. During the present year additional orders have been authorized for the construction of 7,277 freight cars by outside firms.

Far more important than the actual car shortage have been the delays caused by the alteration in working hours, both on the railways and in other trades. Whereas before the war the working day of 11½ hours was available on railways for unloading freight cars, there is now the universal eight-hour day. The men are naturally reluctant to impair the advantages which they have gained by the establishment of this principle by any frequent resort to overtime.

During December 365,533 freight car days over and above the "free time" for loading and unloading were lost.

Equally important as contributing to the traffic congestion is the alteration in the flow of traffic. This change, which is common in the case of many commodities, is due to a variety of causes, the chief being the increased cost of sea traffic, which has thrown the coastal trade on to the railways.

Development.—Many facilities suspended during the war have not yet been restored, and the development department is constantly considering the public need for the reinstatement of such lines and services as were closed or curtailed during the war, and which, owing to financial considerations or scarcity of material, have not yet been restored.

Standardization.—Great advantages can be secured by the standardization of rolling stock and of loading gage. At present there is no uniform design either for freight cars or coaches, but each railway builds its rolling stock to meet its own particular requirements. This diversity causes very great inconvenience in effecting repairs of freight cars which necessarily travel over lines distant from their home system. The trouble is accentuated by the privately-owned cars. Standardization by reducing the number of types to be manufactured will help very largely, but following on the heels of standardization must come the reorganization and possible regrouping of workshops.

In the case of passenger coaches the absence of standardization precludes the use of some particularly modern and up-to-date equipment in through running, owing to the diversity of the loading gage of different systems. If the loading gage could be increased freight cars of a higher capacity could be employed, and it is universally recognized that for certain classes of traffic this would prove economical. Investigations are required as to the cost of such an improvement compared with the possible resulting economies; for it would involve an increase in the carrying capacity of many existing bridges which could not bear the locomotives required for the heavier trains. Indeed, at the present time this very difficulty limits the use of locomotives built by the government for use in the war areas.

Electrification.—The policy of the ministry with regard to the electrification of railways is to encourage the different railway companies to spend their own capital on electrification schemes wherever a well-considered scheme can be produced, more especially with regard to suburban traffic.

There are, however, important points of principle to be settled, so that the various schemes which have been sent forward to the ministry, both for suburban and for main-line railways, shall be so arranged as to facilitate the continuity of traffic and permit the rolling stock of one company to go over the lines of all others. A committee of well-known technical engineers and others is at present sitting to consider the technical points in connection with the interchange of electric rolling stock and to advise on any questions which may arise in respect of through running.

The Recent Strike on the French Railways

Radical Labor Syndicalists Precipitate a Transport Crisis Over a Minor Question of Discipline

By Francis Jaques

PARIS, France.

A MOST UNFORTUNATE and stupid strike, lasting a week, recently paralyzed the French railroads, which at last were just beginning to show a slight improvement in their operation. As a result they are now worse off than ever before, and the effect has been a most disastrous one to the whole country. The ostensible reason for the big strike, as given by its leaders, was an incident of too little importance, compared to the inevitably serious effect on the life of the nation, to have been the real cause of the affair. There were other influences at work of which mention will be made later.

This minor incident took place at Villeneuve-Saint-Georges, near Paris, in one of the Paris-Lyons & Mediterranean shops. The actual facts of the case are these: A certain number of employees of the Paris-Lyons & Mediterranean asked for permission to go to Dijon to a reunion of

announced that he could not interfere in respect to a purely disciplinary measure within the company, although he was always willing to take action in regard to the legitimate claims of the workmen for bettering their financial or moral situation.

Start of the Strike

On February 25, the "Union of the Syndicates of Parisian Railroad Employees" put out a strike circular under the heading: "Solidarity Strike in Favor of Comrade Campanaud, of the Paris-Lyons & Mediterranean, Punished for Having Carried Out a Syndicate Mission."

The first effects of the strike were felt by the passengers of the early trains on February 25, from the suburbs of Paris to the city. Many of these trains had to stop on the way, and the passengers were obliged to finish their trip on



Trains Tied Up During the French Railway Strike

labor syndicates. The president of the Paris-Lyons & Mediterranean, in accordance with the usual custom, authorized the members of the administration council and of the executive commission to go to the reunion; but he did not believe it his duty to give this authorization to three delegates of the propaganda commission.

One of these delegates, Campanaud, went to the meeting in Dijon in spite of the fact that he had been refused permission to do so, and upon his return he was laid off for two days without pay. The employees protested, but the president of the Paris-Lyons-Mediterranean refused to remove the punishment. Campanaud's comrades in the shops at Villeneuve-Saint-Georges, therefore, on February 13, stopped all work, hoping thus to force the president to reconsider his decision, and the strike gradually spread throughout the Paris-Lyons & Mediterranean.

At the same time the personnel of the shops at Villeneuve-Saint-Georges sent a delegation to see the Minister of Public Works. Their spokesman admitted the facts with reference to Campanaud's punishment, as cited above, but said that those delegated who were to go to Dijon, upon being obliged to choose between the syndicate's order and the company's order, had preferred to obey the former.

Thereupon the Minister of Public Works, Le Trocquer,

foot. Most of the principal express trains ran through, but far behind their schedules. The services of the Paris-Lyons & Mediterranean station in Paris were completely upset, and few trains were able to leave. The freight service was entirely stopped, and the supply trains for the central markets arrived too late for the day's sales, thus causing an increase in prices.

In the meantime, the Paris-Lyons & Mediterranean had the following notice posted:

The Paris-Lyons & Mediterranean advises its employees, of all categories, that on account of its obligation to assure the operation of the public service, without interruption, it will be obliged to replace those employees who voluntarily leave their work. A special decision of the administration council, dated January 23, 1920, gave the chief engineer of equipment and motive power the necessary powers to discharge the employees missing and to replace them. These employees are therefore warned that any unjustified absence will lead to their immediate discharge.

Meeting of the Railroad Employees at Vincennes

A second notice recalled the law of July 15, 1845, which punishes by arrest those who injure railway property, and by solitary confinement, hard labor or death those who are the cause of deaths or who encourage disobedience.

On the afternoon of February 25, the railroad employees

of the Paris-Lyons & Mediterranean held an open-air mass meeting in the Bois de Vincennes, and a number of orators addressed the crowd from a café table. After listening to a great many speeches encouraging the continuance of the strike, the following order of the day was adopted unanimously by a show of hands:

The railroad employees of the P. L. M., at a meeting on February 25, in the Bois de Vincennes, after having listened to an explanation of the situation by their leaders, declare they were obliged to strike because of the violation of the syndicate rights committed by their employers.

They take note of the admirable unanimity of their movement. They declare that, forced to employ the only efficacious means in their hands—a general strike—they intend now to bring up the question of *all* their claims, namely:

The establishment and application of the scales of wages and of the status of the personnel.

The basing of the wages of the female personnel on the basis of equal wages for the same work.

The payment of the supplementary hours of work during the war.

The reduction of the length of the apprenticeship before being regularly employed.

The re-establishment of the indemnity of 1,080 francs on account of the high cost of living and the *nationalization of the railroads*.

They greet the entrance of the syndicates of other railroads

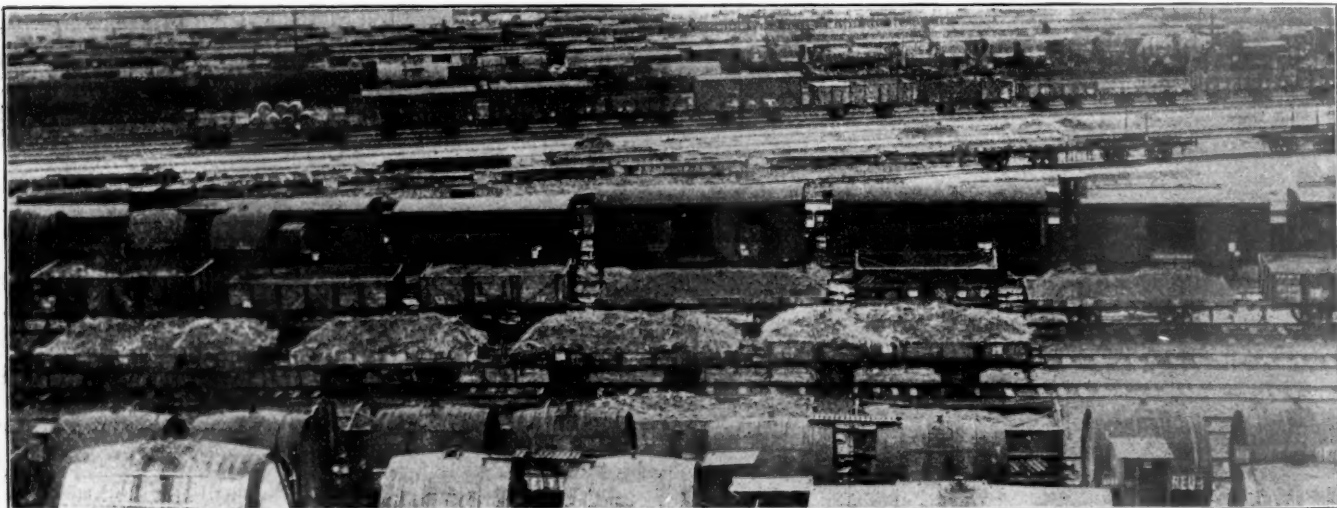
By February 26 the strike had spread to certain services of the Nord and of the State railroads, but it was really only on the P. L. M. that the operation of the trains was seriously paralyzed. On the Nord, as a matter of fact, there was a very powerful movement beginning to show itself against the strike.

Conference with Mr. Millerand

On the evening of February 26, Mr. Millerand, president of the council of ministers, returned from London, and at once received a delegation of the National Federation of Railroad Employees, which so far had remained outside the strike, lending all its efforts towards bringing about a conciliation between the strikers and the railroad company through the intervention of the government. The conference between Mr. Millerand and the delegates lasted until after midnight and no official announcement of the results was made by either party. Mr. Millerand then conferred with Minister Le Trocquer, General Gassouin and other officials.

Government Measures

As a result of a cabinet meeting on the morning of February 27, certain strong measures were proposed and the afternoon of the same day they were voted by the chamber of deputies and ratified by the senate. These comprised a



Idle Because of the Strike

into the struggle, and they pledge themselves not to resume their work before receiving the orders from their organization, and not to permit any comrade to be punished for striking.

A General Strike Ordered

A meeting of 4,000 strikers was held at Villeneuve-Saint Georges, and a reunion also took place in Paris the same day at the Bourse du Travail, at which the Union of the Syndicates of Parisian Railroad Employees decided to order the operating personnel of all the railroads to cease work, authorizing the motive power personnel to operate the suburban trains up to 1 a. m. the next day. This grave decision meant a general strike on all the railroads about Paris. It was made without the authorization of the National Federation of Railroad Employees which usually alone has the power to start such a movement. The Federation had in fact refused to accede to the request made to send a delegate to the meeting at the Bourse du Travail. The Parisian Syndicate announced that it was determined to continue the strike, even if Campanaud's punishment were not insisted upon, until the various claims, held in abeyance since the temporary agreement of February 9, were granted. At the head of these was the demand to nationalize the railroads.

partial mobilization of the railroad employees, the temporary requisition of automobile trucks, automobiles, wagons, boats and, in general, all other means of transportation wherever needed. Any person attempting to avoid the requisition of his property by concealment or otherwise was subject to punishment, as was also any officer convicted of illegal requisition. Indemnities were to be paid for all property requisitioned.

A return was also voted to certain war time restrictions, such as the limiting of the number of courses to be served to one client at meals in all public places including clubs. Milk was to be entirely reserved for children, the aged and sick people. It was voted to have these restrictions begin on March 1, and they were accordingly put into operation on that date.

During the debate on February 27 in the Chamber of Deputies, at which these measures were voted, a number of violent speeches were made by certain socialists. At the end Mr. Millerand made an interesting declaration. He recalled the Campanaud incident and stated that when this employee was punished by two days' lay off for leaving his work without permission, the minister of public works could not substitute his authority for that of the employers of the

employee punished. The minister was right, he said, to refuse to intervene in a question of discipline.

Mr. Millerand announced that no demand to arbitrate had been made, but that if work were resumed and arbitration requested, the government would name an arbitration commission to examine all the causes of the conflict and verify whether the rules for granting leavees were sufficiently precise. He continued by declaring, amid the almost unanimous applause of the chamber, that no one could believe that it was possible to allow the economic life of the country to be suspended for such a motive. It was not the big men whose interests were most threatened by the conflict but the common people.

Mr. Millerand then stated, in spite of the protests of the extreme left and applauded by three quarters of the assembly, that the country was not in the presence of a trade union movement, but of a political and revolutionary movement, released on a trivial pretext. The proof of this was that only that very day a list of new claims had been submitted to the minister of public works.

The government's duty was clear, he declared. It must ask the population to submit to certain restrictions on account of the strike. Others would follow. It was also necessary for the government to use the means at its disposal to assure the revictualment service. Already several "classes" of the employees of the P. L. M. had been mobilized, and this would be continued if necessary. If disobedience or violence were encouraged, the authors would be punished by law at once.

Mr. Millerand then asked for volunteer assistance, which was of such help in breaking the English railroad strike. He appealed not only to the public, but also to the railroad employees themselves who certainly must realize the harm they are doing to the country. National union should take preponderance over trade union as there was no interest, however important, which had a right to set itself up against the nation.

Mr. Millerand was much applauded by nearly the entire assembly when he left the platform.

As a result of the strong measures voted by the government, 10,000 employees of the P. L. M. railroad were mobilized on February 27. This permitted the operation of 500 locomotives. A certain number of men were mobilized on the State railways also. Troops were sent to Paris, and all the bridges, junctions, signals and other important points of the railroads were put under military guard.

Deliberations and Conferences

In the meantime meetings were held by the different syndicates. On the afternoon of February 27, Jouhaux, general secretary of the General Confederation of Labor, accompanied by the members of the council of that body, went to the office of the National Federation of Railroad Employees, and as a result of this visit a delegation was sent to interview the president of the P. L. M. to demand the withdrawal of the punishment which had been meted out to Campanaud. The P. L. M. refused absolutely to change its decision.

All the evening meetings were held by the different syndicate groups. Great pressure was brought to bear on the executive commission of the National Federation of Railroad Employees and that body officially considered the causes of the strike.

National Federation of Railroad Employees Sanction General Strike

On Saturday, February 28, at noon, the federal council ratified the proposal submitted to it by the executive commission the evening before to declare a general strike and an order to cease work was circulated among the syndicates. In that order the Federation said:

"The executive commission of the Federation, in view of its responsibility and after having exhausted all methods of conciliation, meeting with an obstinate resistance on the part of the P. L. M., the minister of public works and the president of the council, who refuse to suspend the punishment while waiting for a decision by an arbitration commission, has decided the general cessation of work on all the railroads."

As a result of this order declaring a general railroad strike, the government promptly decided to mobilize a certain number of employees on all the railroads, and to employ throughout the country the same measures of protection as taken on the P. L. M. Special steps were taken to ensure the revictualment of Paris in any eventuality.

In the meantime, the railroad companies were making every effort to continue the operation of their lines. In general, the great majority of the railroad employees remained faithful to their duty; in fact, nearly all those of the Nord and Est Railroads—perhaps because they appreciated better than the others what a calamity this strike was for the country, their service leading them daily through the regions devastated by the war.

For days everyone wondered what part the General Confederation of Labor would take in the conflict, and whether it would declare a general sympathetic strike of all labor corporations. The Confederation continued its very guarded attitude, apparently fully understanding that public opinion was absolutely against the strike, and consistently refused to be moved by the clamors of the various agitators. On February 29 it issued a cautious note to the Press which was sympathetic to the strikers but reserved action until all hope of conciliation had been abandoned.

Protests Against the Strike

It is interesting to note the large number of circulars which began to appear about this same period, showing a very strong sentiment in various quarters against the strike. Former soldiers of the Est Railroad issued the following appeal:

The combatant railroad men of the Est Railroad protest with all their energy against the general strike forced on them by the rabid political agitators of the syndicates of railroad employees.

They declare that it is not for a personnel, which was favored during the war, to wreck this victory of the "poilus."

They know that the responsibilities of the situation are to be shared between the agitators at the bottom and the profiteers at the top. Above this conflict, however, there is France, which may die in the hour of victory. One must think of the regions which will lack supplies most indispensable to their very life, particularly in the liberated sections.

Under these conditions, the members of the association request all their comrades to resume their work, and united as at the front, they offer their services for all the active positions such as firemen, trainmen, etc.; in a word, where their services may be judged the most useful.

Forward, comrades, for duty, for justice, in peace and in war.

Long live France first of all!

The Nord Railroad placarded on the walls of its stations, the following notice:—

An agitation is manifesting itself among the railroad men of certain lines.

Whatever may be the cause, it is the duty of the personnel of the Nord to remain outside of this agitation on account of the special situation of our regions which have been devastated by the war.

Employees of the Nord, of all degrees of the hierarchy, of all services, you know how we have been destroyed by the war, you know what difficulty you have had to build up the railroad again, what tremendous efforts you have had to make it render its operation once more almost regular.

We have all of us begun in the last few weeks to see the

fruit of our efforts. We have begun to see our trains running more regularly, more fittingly allotted and better classified. For those reasons and thanks to the progress of our installations, we have been able to offer more cars to the public. In other words, we felt that we were going to begin to give satisfaction to the population of the devastated regions.

Were this reorganization interfered with we would lose, in a few days, the benefit of the results which we have obtained with so much difficulty in the last few months. This would bring suffering to your families and friends, and new privations after those caused by the enemy during four years and a half.

The employees of the Nord will not do this. They will understand that, above all, their duty is not to deprive the liberated regions of a single train, of a single car or of a single package, because a Frenchman does not kill off a wounded man, and the region which we supply is, all of it, severely wounded.

The Professional Syndicate of the Railroad Men of France, Midi Railroad, also published an appeal against the strike.

Several French chambers of commerce sent addresses of sympathy to the government. The National Confederation of Agricultural Syndicates added its voice, also, to the many raised against the strike.

The Strike Fails to Progress

The situation on the morning of March 1 showed rather an improvement as far as the railroad companies were concerned. In spite of the order for a general strike the movement continued to remain stationary and as a result of the partial mobilization and other measures adopted by the government there was a slight increase in the number of trains operated. It was clearly evident that public opinion was strongly against the strike, and that the great majority of the railroad employees realized that they were being used as tools by political agitators.

On March 1 the government arrested five strike leaders, all railroad men, for advising resistance to the law and encouraging soldiers to disobey. Two days before the editor of a paper called the "Libertaire" a long-haired youth only 20 years of age, with rather advanced ideas, had been arrested because of an unsigned editorial which had appeared in that paper on February 24, containing anarchistic propaganda. In making these arrests, the government carefully avoided any action which might be construed as a provocation, but showed its determination to be firm and carry out the law.

The Railroad Strike Comes to an End

The end of the strike was brought about by a number of causes. In the first place, the railroad employees had begun to realize that they could no longer brave the increasing hostility of the nation, whose most vital interests were compromised by the movement. The strikers were even boycotted in many places, and dealers refused to sell them supplies. On all the railroads the strike movement was decreasing in force and, thanks to the number of volunteers and of employees who had returned to work, the train service was improving.

On the other hand, the General Confederation of Labor, whose help certain agitators had hoped to obtain, fully took into account the fact that the great majority of labor syndicates and the entire population desired to see the end of the strike.

The able attitude of the government, combining prudence with firmness, helped not a little, too, in facilitating the happy solution of the crisis. The workmen could not plead that there was the slightest provocation because of the fact that a certain number of arrests had been made after the strike had been going five days. No government could have allowed the right to work to be interfered with, and soldiers to be publicly encouraged to disobey.

Terms of the Agreement

The following are the terms of the agreement reached at midnight, March 1, between the delegates of the Federation of Railroad Men and the officers of the principal railroads:—

1. Respect for syndicate rights. It is agreed that the situation will be clearly defined for the future.

2. Application, in a general way, of the proposals concerning scales of wages and the statutes of the Federation within the time limit determined by the Federal Council.

3. The naming of special commission composed of railroad officers and employees for the secondary railroads in order to take up the same claims.

4. Immediate study in common of the future method of operating railroads.

As it was impossible to reach an agreement as to the 5th point:—"No punishment for striking," the two parties decided to allow the president of the council to settle this question, and he rendered the following decision:

"The employees will not be paid their wages for the days when they were on a strike.

"The disciplinary measures will be considered as annulled which were taken against those who merely refused to resume their work after being requested to do so.

"This disciplinary measure adopted as a result of all other acts will be submitted for reconsideration by each railroad president in a spirit of fairness."

The Strikers Go Back to Work

As a result of the agreement reached the striking employees gradually resumed their work, but unfortunately this did not put an end to the disastrous effects of the strike. The stopping of the traffic and congested the passenger and freight stations worse than ever. At least two weeks time was required to get back to even an approximately normal state of operation. The task was particularly hard for the Paris, Lyons and Mediterranean, which had suffered more than any other from the effects of the strike. Even by the end of March nearly all the railroads were still operating under great difficulties with reduced train service, and their condition was certainly much worse than that before the strike, which, heaven only knows, was bad enough.

The P. L. M. decided to double the wages of all its employees, for the month of March, who remained faithful to the company during the strike in order to compensate them for their extra work and loyalty under great difficulties.

The Real Causes of the Strike and Its Lessons

It is quite certain that the real reasons for this lamentable strike were not of a professional nature. The railroad employees had already made a list of their claims, and this was being examined in a most serious manner by the government and the different commissions which were studying the question of the reorganization of the railroads. Even the most rabid socialists in the chamber of deputies had been obliged to recognize that serious efforts were being made to improve the moral and financial situation of the railroad personnel and the method of operating the railroads.

Now just at a moment when the railroad rates had been raised, thus permitting the companies to pay higher wages to their employees, and when the commissions made up of railroad officers and workmen were beginning to reach the end of their studies, a certain number of agitators believed that the hour had come to carry out their political dreams and attain the marvelous benefits promised them by the prophets of "bolshivism."

Upon a trifling pretext they gave the strike order, without considering the disastrous effects to the nation—the children without milk, whole cities without flour and bread and thousands of laborers forced to cease their work. The first to suffer were the families of the working people themselves.

Fortunately the General Confederation of Labor, realizing fully that public opinion was against the movement, resisted the pressure of the Syndicates of the Paris district and refused to declare a general strike of all labor corporations. It was thus able to be a helping factor in the negotiations leading to the end of the strike, and which were conducted in such an able manner by Mr. Millerand.

Now the railroad employees have gone back to work, it will be necessary to make up for the time lost. A valuable

object lesson to them will be the fact that the agitators, who tried to lead them astray and who encouraged disobeying the mobilization orders, will be tried and punished by the courts through the strict application of the law.

It is to be hoped that thus the crisis will not have been entirely useless, for it would be an error to suppose that the life of the nation can be interrupted in this way whenever radical agitators may wish to try out their political experiments.

Wage Hearings Before Railroad Labor Board

Headquarters to Be Established at Chicago After Testimony of Labor Organizations Is Presented

WASHINGTON, D. C.

THE RAILROAD LABOR BOARD expected to complete by the end of this week its hearings in Washington on the petitions of the railroad labor organizations for general increases in wages and to adjourn to its permanent headquarters in Chicago, which are to be established in the Kesner building there on May 17. The replies on behalf of the railroad companies to the statements made by the labor leaders here will probably be heard in Chicago.

Following the testimony of W. S. Carter, which concluded the initial presentation of the trainmen's organizations, the board heard E. H. Fitzgerald, representing the clerks, station employees, etc.; E. J. Manion, of the Order of Railroad Telegraphers; D. W. Helt, president of the Brotherhood of Railroad Signalmen; E. F. Grable, president of the Maintenance of Way Employees' organization, and B. M. Jewell, president of the Railroad Employees' Department, of the American Federation of Labor, was expected to testify on behalf of six shop organizations.

Some idea of the magnitude of the task before the board is given by the fact that it asked Congress on May 1 for an appropriation of \$400,000 for the next fiscal year and \$50,000 in addition to the \$50,000 already appropriated for the balance of the year ending June 30, 1920, to enable it to maintain the necessary organization and establish adequate offices at Chicago.

W. S. Carter

W. S. Carter, president of the Brotherhood of Locomotive Firemen and Enginemen, completed his statement before the board on April 30 after presenting voluminous statistical exhibits. Many of these were to show the hazard of the fireman's work and the irregularity of his employment. The great majority, he said, either work very short hours or very long hours per month, and while men in the building trades receive rates as high as \$1.25 an hour because of the knowledge that their work will probably not last for more than eight months of the year, the fireman's work is still more irregular.

Mr. Carter criticized the statistics usually compiled to show the earnings of trainmen as obscuring the number of irregularly employed and poorly paid in averages raised by men who work many hours of overtime or cover excessive mileage, and he hoped the board would make a study on one or more individual railroads and trace the earnings of individual men by name to show exactly what they earned. He contended that the earnings of individual men would fall 20 per cent below the figures shown by averages, because if the figures were taken in October many of the men who were included at that time were out of a job in July, but the averages were brought up by the men who were left at work firing in July but were running engines in October. The average yearly

earnings of firemen compiled in this way, he said, include the earnings of more than one man. When Mr. Carter also suggested that the board obtain other statistics, Mr. Wharton asked how long Mr. Carter thought it would take to collect the data and make the studies. When Mr. Carter replied that the board would do well to obtain the necessary information within a year, Mr. Wharton asked if he meant to suggest that the board should take that long to reach a decision.

"The board should not hold up its decision," Mr. Carter replied, "but it would have the information when I come back again next year."

Mr. Wharton said the Board of Wages and Working Conditions had obtained the information as to the earnings of 700 or 800 men on regular or assigned runs on representative divisions of various roads for the month of April, but Mr. Carter insisted that these figures do not give an accurate impression of what the individual firemen earn or have an opportunity to earn for a year. To show the "turnover" among firemen, Mr. Carter said that the membership of his organization had increased in 10 years by 49,000, but that there had been 153,000 new members, while 85,000 had left it permanently because of leaving railroad service, and he said the actual turnover among all firemen is even greater because many of the younger men leave before they become members of the brotherhood. Most of the new men who try firing quit after the first trip, he said, and when the "insurgents" left the service recently, large numbers of them did not return to work because they could go across the street and get better pay for easier work.

"This turnover costs the companies enormous amounts of money," he declared, "and it creates a bad situation for everybody. It is not the fault of the companies. They can't help it, but it is a fault of the industry." He suggested that the board make a study to find out how many firemen remain in service long enough to become engineers.

Mr. Carter also cautioned the board against placing too much reliance upon a statement which he said had been compiled by the director general showing the hourly earnings of railroad employees, because, he said, that it is possible in such statements to show a 50 per cent increase in wages as a 125 per cent increase in the hourly rate. For example, a man paid \$3.20 in January, 1917, for a 10-hour day would have an hourly rate of 32 cents an hour and the rate would be the same if he worked 14 hours. He has since received a 50 per cent increase to \$4.80 and time and one-half for overtime after 8 hours. So if he worked 14 hours in January, 1920, he would receive 60 cents an hour for 8 hours, or \$4.80, and 6 hours' overtime at 90 cents, or \$5.40, a total of \$10.20, or 72 cents an hour, although his normal earnings have increased only 50 per cent.

Mr. Carter urged that the board should not give a hearing

to the "insurgents" who had repudiated wage agreements made by the brotherhoods. "If the board is going to allow itself to be swamped by cases brought before it by groups of 100," he said, "you are going to cease to function, and what you have seen in the last six weeks is only a taste of what would happen." He expressed the opinion that the provision in the law for petitions by groups of 100 or more unorganized employees was not intended to apply to such men as the insurgent members of the standard organizations, but to those who were not allowed by their employees to be organized.

He also expressed regret that the railroads had not made a greater effort to reach an agreement with the employees on the wage demands without referring the case to the board for decision, on the ground that he thought the law contemplated that both sides should get together and attempt to settle the question. "If they are going to pass the buck every time," he said, "the board will be so swamped it will never get anywhere."

The executives of the brotherhoods, he said, had hoped that the boards of adjustment created by the Railroad Administration would be retained, and they had arranged to establish an officer of each organization at Cleveland to pass upon each case to be submitted to the boards in order to reduce the number, but now they understand that the railroad companies are not willing to continue the boards of adjustment. He thought that voluntary agreements obtained through mutual negotiation or decisions of a bi-partisan board would be preferable to a decision reached by a tribunal created by law.

E. H. Fitzgerald

E. H. Fitzgerald addressed the board on April 30 on behalf of the Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees. He asked for a 20 cent increase per hour, retroactive to January 1, 1919, time and one-half for Sundays and holidays, two weeks' vacation with pay, the elimination of piecework and tonnage and bonus system of payment, and re-establishment of differentials for scalers, stowers and callers over the rates paid to truckers. He said the great majority of the employees he represented receive \$87.50 a month, "which is wholly inadequate for even a minimum standard of living."

Under the wage orders of the Railroad Administration, he said, the wages of freight handlers and station employees cannot exceed \$3.44 per day and those of clerical workers cannot exceed \$3.43 a day. "While the employees of other industries were granted one increase after another, the railroad employees were receiving one promise after another of an increase to afford them some relief.

"The railroad employees are entitled to a living wage, and any industry that cannot pay a living wage to all of its employees is a menace to our country. We are all Americans and should receive a wage sufficiently adequate to live as Americans, be able to properly feed and clothe our children, give them an education and to enjoy the pleasure of living as Americans should live. This is in marked contrast to the present conditions confronting the employees I represent before this board.

"I am representing thousands and thousands of these employees, the sons and daughters of engineers, machinists, trackmen and others, who have had to take their children out of school to help maintain the home. These sons and daughters will be found in most of the parcel and baggage rooms, in yard offices, on station platforms, all doing their bit to assist in keeping the home together. There is no American who can provide a home and its comforts on \$87.50 per month. Over 15,000 employees I represent receive at this time \$2.94 per day. They approximate \$75 per month.

"My purpose has been to keep the experienced employees in the service of the railroads, especially during the war, in order that there would be no impairment of the service, but when the government repeatedly promised relief from the

high cost of living, established a rate of \$87.50 per month for several hundred thousand employees, and at the same time established rates in excess of \$200 per month for its employees in the shipyards, the employees lost hope of obtaining any relief. This has been evidenced by the recent upheavals in this country of the employees in industries over which the government exercised price-fixing."

Mr. Fitzgerald said that under Supplement 13 in many cases the increases awarded by General Order No. 27 were reduced and that his own case was an example. He was employed as information clerk upon the Southern Pacific at \$85 a month, and under General Order No. 27 was given an increase of \$34 or 40 per cent to \$119, but Supplement No. 13 reduced him to \$110. Mr. Wharton pointed out that the supplement had given large increases to the clerks as a class and was based on the representations of the organization.

"I am not here to apologize for what was done by the organization before I became connected with it," said Mr. Fitzgerald, "but on many roads the clerks had not been allowed to organize and had no voice in what was done by the organization." He described the effect of the various wage orders as applied by the roads and said that many men received a very small increase when the wages were stated in rates per day because many had been rated as 365-day employees, although they had not worked every day. He said that some roads tried to increase the hours by half an hour, but that the men simply "soldiered" for the half hour.

E. J. Manion

E. J. Manion, president of the Order of Railroad Telegraphers, testified on May 1 on behalf of train despatchers, agents, telegraphers and telephoners, block operators, etc. He presented the same request that had been made to the Railroad Administration, on which a hearing was held before the Board of Railroad Wages and Working Conditions on December 4, proposing the establishment of standard basic rates for the 13 classes of employees represented, which, he said, would increase the average hourly rate from 55.75 cents to 81 cents and would reduce the number of different rates from 182 to 24. He also asked for a minimum of \$225 a month for train despatchers and an increase of \$60 for all monthly-paid employees.

Mr. Manion explained that the large number of different rates in effect resulted from the former plan by which wage negotiations were handled by individual roads in conference with the representative of the organization, and lump sums were agreed upon to be divided among the employees in increased wages. This resulted, he said, in different rates being paid for the same work frequently on the same road and in the same building, and an analysis of the wages of 64,736 employees on 128 roads showed that there were 173 rates for agents, which he proposed to reduce to 24; 135 rates for agent telegraphers, which it was proposed to reduce to 11; 101 rates for agent telephoners, which it was proposed to reduce to 11; 94 rates for other telegraphers, which it was proposed to reduce to 8; 98 rates for towermen and levermen, which it was proposed to reduce to 8. On the Southern Pacific, with 1,530 different positions, there were 46 rates of pay; on the Illinois Central, with 1,471 positions, there were 97 different rates of pay, and on the Texas & Pacific, with 516 positions, there were 64 rates of pay. The average earnings of 64,000 employees were 55.75 cents per hour, while 54 per cent received an average of 51.36 cents.

The average earnings of the employees represented on 25 roads in 1914 were \$71.98 a month. Some of these employees worked 365 days a year and some only 313 days, and the hours varied from 8 to 12. Mr. Manion said that these earnings before the war were barely sufficient to maintain a physical existence, and he asked the board to award wages which would allow a proper living wage based on the standard of decency, health and reasonable comfort, and differ-

entials above this amount for skill, training and hazard. Later witnesses appearing on behalf of all of the organizations would submit a detailed scientific budget of living expenses. Mr. Manion said that since the President's coal commission has awarded a minimum of \$6 a day, he considered that his organization was conservative in asking for approximately this amount. He asked that the board render a decision as soon as practicable without allowing the railroads time to prepare "irrelevant" statistics as to what the increase in wages would cost, on the ground that the cost of establishing a reasonable wage is not a subject for the consideration of the board.

D. W. Helt

D. W. Helt, president of the Brotherhood of Railroad Signalmen, presented a modification of the request which he had filed with the Railroad Administration in March, 1919, saying that an agreement had been reached with the railroads on certain items of the request, although not to the entire satisfaction of the men. He asked for rates for the various classes of employees represented, to be made retroactive to January 1, 1919, and to be further increased on a percentage basis by the amount of the increase in the cost of living since that time. The figures to which he asked that these increases be added are as follows: Signalmen and signal maintainers, a minimum hourly rate of 85 cents; signal department helpers, including lamp men, 60 cents; assistant signalmen and assistant signal maintainers, 60 cents for the first six months, with an increase of 2 cents per hour for each six months thereafter for four years; signal inspectors and general foremen, \$1.10 a year; signal foremen, \$1 a year; assistant foremen, 90 cents.

Mr. Helt said that data would be presented on behalf of all of the shop crafts showing comparisons with the wages paid in other industries. He asserted that the occupation of the signalmen should be classed as hazardous because while these employees normally handle low-voltage wires and apparatus and therefore are not furnished with rubber gloves and insulated tools, they are continually exposed to the danger of high-voltage current as a result of crosses and short circuits and most of their work is done under traffic conditions. About 70 per cent of the signal employees are skilled craftsmen whose work requires technical knowledge, although it is now almost impossible to get skilled craftsmen to take these positions at the present wages. He described at length the character of the work and the necessary qualifications and responsibilities of signalmen.

Mr. Helt also asked for the correction of inequalities resulting from orders of the Railroad Administration, saying that Supplement No. 4 to General Order No. 27 had inflicted a gross injustice on signal department employees by establishing a differential of 10 cents per hour for employees working in low-voltage territory under 240 volts. This had the effect of setting up two classes of these employees where one existed before, and he asked that the differential be removed. A considerable number of roads as a result of negotiations had awarded the 68-cent rate for first-class electricians and composite mechanics to employees in low-voltage territory on the ground that their duties were those of first-class electricians, and Supplement No. 28 had decreased the inequality but had left a 4-cent differential.

E. F. Grable

E. F. Grable, president of the United Brotherhood of Maintenance of Way Employees and Railway Shop Laborers, in presenting the demands of his organization to the board, stated that he represented "the largest body of the most inadequately paid men in railroad service." Moreover, he said, certain of the occupations are actually the lowest paid industrial occupations for adult males in the United States.

"Almost 300,000 of the men in our occupations," said

Mr. Grable, "receive annual incomes that average only \$924 or less, according to the figures of the United States Bureau of Labor Statistics. Forty thousand more, men who are competent to boss gangs of workmen, average \$1,208 annually. Our best paid workers average under \$1,600 annually, and there are only 10,000 of them. No one would have the effrontery to contend that men can live and support families on such wages.

"In 1909 the Sage Foundation published the result of an investigation by Dr. Robert C. Chapin, which showed that 76 per cent of families with an annual income of \$600 or less were underfed, underclothed and overcrowded. That means that at that time \$600 was a starvation wage. Since that investigation was made the cost of living has advanced 110 per cent, and on that basis Dr. Chapin's minimum of existence wage would now be \$1,260, or more than the average annual earnings of more than 85 per cent of our men. In fact, the big majority of our men have annual incomes that are actually one-fourth less than Dr. Chapin's starvation wage, as computed on present-day living costs. That statement may sound almost incredible to the general public, but it is as true as it is astounding.

"That any considerable body of men should be so inadequately paid is worse than criminal—it is stupid. Like all stupid things it is costly, for it is a menace to both our political and economic institutions. There is one thing worse than political oppression, and that is economic exploitation. People who can't get bread don't like to be told to eat cake, and they don't like it any better in democratic America than they like it in monarchical France.

"The trouble with our country just now is that we have too many people who are eating cake, and too many who find it next to impossible to get enough bread for their families and themselves. That is the underlying cause for all our unrest which has found expression in various forms of so-called radicalism.

"Establish the principle of the minimum living wage—a wage that means adequate food, adequate housing, adequate clothing and a fair share of the reasonable comforts of life for every worker and his family—and you will take the first long step toward industrial peace and stability. And until that step has been taken it is useless to talk about speeding up production and getting business back to a normal or permanent basis." The maintenance of way and shop workers, through Mr. Grable, asked a minimum wage of 60 cents per hour, as against a present maximum wage of 53 cents.

The minimum rate of 60 cents an hour which Mr. Grable referred to applied, however, to only one or two positions in his proposed wage scale, crossing flagmen and "other laborers." He asked for \$270 a month for general bridge and building foremen, \$250 a month for house carpenter foremen, \$250 for painter, tinner, water supply, brick and concrete, cabinet and bench carpenter, steel bridge and steel tank foremen, and from \$208 to \$250 for other foremen in this department. In the track department he asked for rates ranging from \$208 to \$250 for foremen, 65 cents an hour for regular trackmen, and other rates ranging from 60 cents to \$1 an hour for various classes of employees. For gang foremen the proposed rate was \$156 a month. Mr. Grable also asked for an order extending the present national agreement in which he proposed several changes. E. T. Whiter, chairman of the railroad conference committee, objected on the ground that these proposed changes had not been submitted to the railroads, so far as he knew, and that some of the rates had not been submitted.

B. M. Jewell, president of the Railroad Employees' Department, American Federation of Labor, explained, however, that all of the proposals submitted to the board had been submitted to the individual railroads on April 28 in order to be sure to take in all railroads and to comply with all

the requirements of the law and that a report would soon be made certifying that the demands had been presented.

Mr. Grable said that employees in the maintenance of way department are being generally asked to work over eight hours a day because the roads cannot get enough men at the wages paid.

J. H. Pruett, of the Masters', Mates' and Pilots' Association, followed Mr. Grable, presenting a request for wage increases for the marine department employees.

The board on May 4 denied the application of the Columbus, Ohio, Yardmen's Association, presented by E. C. Sawyer for a hearing, on the ground that it had not complied with the requirements prescribed by the board.

Representatives of the various organizations of "insurgent" yardmen on April 29 filed with the board a letter again asking for a hearing and that the board require the railroad managers to allow them to return to work. They claimed to represent 125,000 men who desired to be represented by the new yardmen's and enginemen's associations rather than by the brotherhood officers. A similar letter was sent to members of Congress. The Order of Railroad Station Agents has filed a petition with the Interstate Commerce Commission for a rehearing on its classification of officials, subordinate officials and employees. Station agents by the commission's order were classed as officials and they wish to be classed as subordinate officials so they may petition the labor board for increases in pay.

The Widespread Freight Blockade

THE STRIKE of freight train men, particularly yard men, continues to hamper the movement of freight seriously.

The employment of new men and the restoration of strikers goes on slowly and there is some improvement; but also many setbacks. New strikes of yard men are reported here and there; small and local, but very troublesome. The general freight-yard situation at and around New York does not seem to be definitely very different from that reported in our last issue. In Jersey City and Hoboken the strikers, who are still out, keep up a considerable agitation, and at a parade and meeting held by them on Wednesday evening, May 5, the attendance was given as 3,000.

The Merchants' Association, the Chamber of Commerce and other business organizations of New York City are moving to take drastic action toward breaking up the paralysis of the city's wholesale trade which is declared to be suffering enormous losses estimated at \$2,000,000 a day; due not alone to the railroad strike but also to sympathetic movements. Several hundred representatives of these mercantile bodies held a meeting on May 5 and adopted strong resolutions to meet the labor-union menace. The refusal of the truckmen to haul merchandise to and from piers in sympathy with strikers there is declared to be the main cause of the stagnation of business in the port. If necessary, the tradesmen say, they will obtain their own vehicles and go into the trucking business themselves on an unprecedented scale. Negotiations are now proceeding for the purchase of hundreds of army trucks from the government.

The railroads, say the merchants, are entirely too optimistic in their reports on progress in moving freight in and out of the city. Merchants have been attempting to get their goods into and out of the city through rerouting and then by steamships, but in this they have been balked by the union truckmen. The 20,000 truckmen of the city are said to be organized about 95 per cent and are acting in concert with 6,000 striking longshoremen on the coastwise lines, 4,500 longshoremen and harbor workers on strike against the ferries and floating equipment of the railroads, 2,000 insurgent railroad yardmen and switchmen and 2,000 striking check-

ers and longshoremen at the piers of the United Fruit Company, whose troubles were reported to have been patched up, but who are still out.

Some of the commercial reporters of the daily papers report the situation, from the merchants' standpoint, as slowly improving; but in very guarded language. Dealers in cement and other building materials declare that in Manhattan, where there is powerful pressure from city officers and from the press for the construction of new dwelling houses, the work of builders has been brought almost to a standstill because of the freight blockade. Carloads of building materials coming in by railroad cannot get within 20 or 30 miles of New York. Wholesale receivers of eggs say that immense quantities of their goods have been kept so long a time on the road that the condition of the egg has been seriously impaired. Banks are reported as being embarrassed by great numbers of drafts which they are carrying and which cannot be collected until the arrival of the freight represented by these papers; and the freight is still indefinitely delayed. One competent observer guesses that the value of freight shipments thus abnormally delayed, and while delayed, constituting an abnormal load on the banks, will aggregate a billion dollars.

From Charleston, S. C., cotton merchants and others are reported as complaining of heavy losses by delay in shipments.

The shortage of freight cars, due in some cases to the large number of cars held under load, has slackened freight train movements here and there. The Western Maryland last week laid off 30 trainmen.

At New Orleans on Saturday, the Belt Railroad notified shippers and connecting roads that no freight could be moved to the river front because of congestion caused by the freight handlers refusing to handle freight cars in the movement of which non-union clerks had a hand.

At Buffalo, on April 30, a large number of switchmen, said to be members of the recently organized Yardmen's Association, walked out, and for the second time within two weeks every freight yard in the city was reported as tied up. The railroads brought in men from other yards and also pressed into yard service large numbers of men from other departments, so that they soon had enough volunteer crews to keep moving a considerable volume of freight. By Wednesday of this week, the New York Central reported the east-bound movement as nearly or quite normal; and the Lackawanna and the Erie removed embargoes which had been placed when the strike broke out, on May 1. There was a general improvement; but a new difficulty developed in the refusal of a number of clerks in the Erie and Nickel Plate freight houses to handle bills turned in by non-union yard conductors.

IF THE LAW WORKS, as most of our experts in business and finance believe that it will, a convincing answer to the radicals will be given; it will be demonstrated that private enterprise can give its benefits to free people freely while the people's government acts simply to safeguard against transgression of public rights.—*Rochester (N. Y.) Post-Express.*

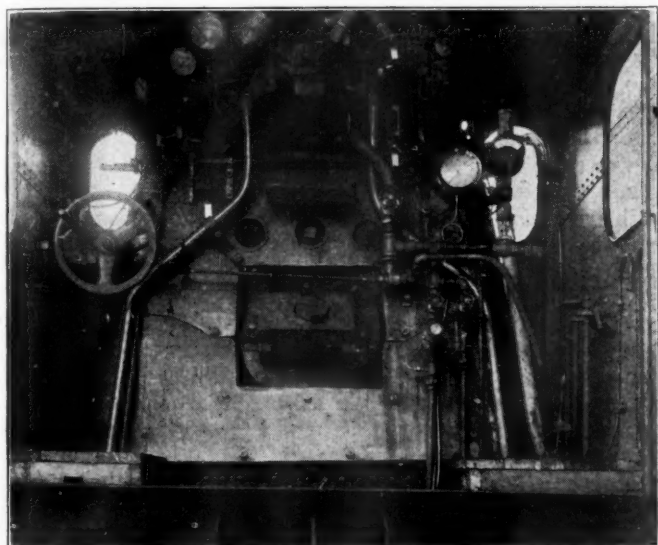
ONE STRIKING CHARGE which has come over the aspect of freight rates is that in the attitude of the shippers toward the proposed increases asked by the railroads. Before the government took control of the roads every increase asked was strenuously opposed by the shippers' associations. But the return of the roads to their owners sees a complete face-about. High rates with service are now looked upon with favor. Low rates without service have had their trial. It is noteworthy that it is the element of service, regular, frequent and uninterrupted, which is now recognized as the real province of the railroads.—*Worcester (Mass.) Telegram.*

Pulverized Coal for Italian Locomotives

Description of Equipment Designed for Italian State Railways to Utilize Native Low Grade Lignites

BECAUSE THE FUEL SITUATION in Italy is becoming more critical every day, the Italian State Railways decided in December to equip two of their new heavy Consolidation type locomotives for burning pulverized coal, the object being to utilize the lignite fuel in Italy, which can be mined at a reasonable price.

The coal used on the Italian State Railways is today prac-



Interior of Cab Showing Fireman's Control Apparatus on Right Hand Side

tically all imported and costs about \$34 a ton in United States currency, delivered.

The following may be taken as a fair sample of an average analysis of the Italian lignite fuel:

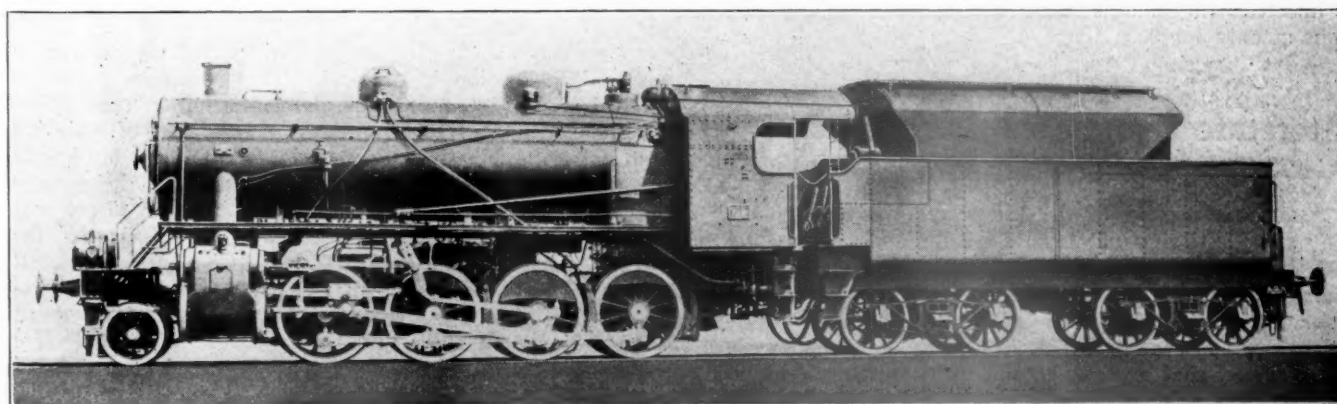
Ash	10 per cent	Fixed carbon.....	30 per cent
Volatile	40 per cent	Moisture	20 per cent

It is proposed to operate the pulverized fuel locomotives

tive Company at Schenectady, N. Y. The order was placed with the Fuller Engineering Company for two complete equipments. These were applied to the locomotives in less than 60 days and tested out with pulverized coal, about 10 tons being consumed on the two locomotives.

The pulverized coal burning equipment installed on the locomotive is of practically the same size and capacity as that in use on Lehigh Valley locomotive 1360, which has been burning mixtures of anthracite and bituminous coal successfully for some time. This installation was described in the *Railway Age* of September 12, 1919. Practically the only change required in the tender was to substitute a U-shaped tank and move this bodily on the tender frame seven inches to the rear in order better to distribute the weight on the front and rear trucks. Because of the compactness of the equipment it was possible to install it without altering the water legs from the standard design, the only change in this respect being that the hand brake handle had to be raised to allow for clearance. As only one pulverized fuel plant is to be provided in the initial installation, it was of course necessary to provide for a much larger fuel capacity than on the hand-fired locomotives, which is the reason for applying a tank holding 10 metric tons.

A brick arch supported on tubes is placed in the firebox and the sides of the combustion chamber beneath the firebox proper are bricked up with air vents controlled by dampers, these all being controlled from the cab on the fireman's side. This arrangement is similar in detail to the Lehigh Valley locomotive, although the smaller size of the firebox on the Italian engines restricts the dimensions of the combustion spaces and brings the flash wall very much nearer to the burner. The feed screws are driven by a two-cylinder, a double-acting reciprocating engine, enabling a wide variation to be obtained with the minimum steam consumption at all times. A feature of this equipment is that the screws can be started up and operated on a 25-lb. steam pressure. This is a great advantage when it is considered that very often the pressure in roundhouse firing up lines drops to 30 lb. As the screws are operated in pairs, it is impossible for the coal to



Italian Locomotive Equipped for Burning Pulverized Coal

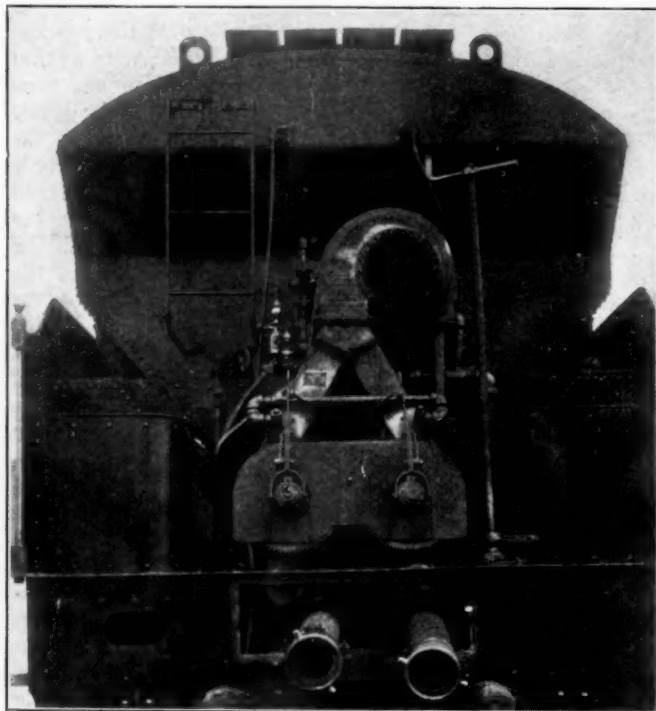
between Rome and Viterbo, a distance of approximately 80 kilometers.

At the time the Italian State Railways placed this order, the last of an order of 150 Consolidation type locomotives was being completed in the shops of the American Locomo-

arch over and a steady constant feed is obtained, no matter how heavy the coal or how long it has been in the tank.

At the time the order was placed for the locomotive equipment a pulverizing plant was also ordered from the Fuller Company to consist of two standard 42-in. screen type pulver-

izing mills, having a capacity of approximately four tons per hour each, a standard drier fired by pulverized coal and having an approximate capacity of 10 tons of dried coal per hour. The coal plant throughout is of the standard type with a track hopper for receiving the coal from the cars, single roll crusher for crushing it down to the proper size for the pulverizing machines, magnetic separator, and all necessary conveyors, as well as a 40-ton pulverized coal storage bin, which is placed over the track. Two separate butterfly valves with filling spouts are provided for coaling the locomotives. The plant is driven throughout with electric motors and is



Pulverized Coal Apparatus Applied to Tender

equipped with dust collectors and separators in order to make a clean, dustless, modern plant.

On account of the extremely low grade fuels it is proposed to burn in pulverized form, the performance of these locomotives will be watched with considerable interest by American engineers. It is stated that some of the native coal to be experimented with contains over 62 per cent ash and has a B.t.u. value of only 3,640.

Interstate Commerce Commission Favors Seasonal Coal Rates

CHAIRMAN CLARK of the Interstate Commerce Commission, testifying on April 29 before the Frelinghuysen sub-committee of the Senate committee on interstate commerce, said that the members of the commission had voted unanimously in favor of the principle of seasonal freight rates on coal. "It being possible, as we believe," he said, "to store coal in reasonable quantities, we are convinced that any plan that will more nearly equalize throughout the year the operation of mines and the distribution of coal will be in the public interest and inure to the benefit of coal producers."

He said that while the effect in inducing consumers to store coal might not be very noticeable at the start, eventually the public would come to see the desirability of the plan. The coal industry is over-developed, there is too much competition in it and legislation of the kind proposed cannot

be enacted without pinching somebody's toes. But the question is whether the matter is to be viewed from the standpoint of the country as a whole or whether the coal interests shall be allowed to fight it out among themselves. The opposition or endorsement of the railroads, Mr. Clark said, would depend on whether they expected it would increase or decrease their traffic, and if they think the people will not purchase coal in reasonable quantities during the summer months while lower rates are in effect, he did not see why the railroads should object because they would receive the higher rates for the coal moving in the winter months. Even if only 10 or 15 per cent of the coal movement were transferred from the winter to the summer months it would have a beneficial effect. He preferred the plan of reducing the rates by stated amounts per month, as provided in the substitute for the Frelinghuysen bill proposed by Eugene McAuliffe, to the plan of a percentage decrease in the summer and increase in the winter on the ground that the former plan would work less disturbance in rate relationships. He did not believe that the commission has the power to establish seasonal rates under existing law because the commission has no authority to change rates merely to produce certain economic or industrial results.

Chairman Clark also discussed in detail the various objections made to the bill by coal operators and shippers from various districts. Senator Frelinghuysen asked if there is any ground for believing that the coal car supply can be increased in the next two or three years. Chairman Clark said the number of cars would be increased to a certain extent, but that it would hardly be possible within two or three years to make up for the shortage that accrued during the war period and also the current replacements. Whereas in May, 1919, there was a surplus of 103,000 open top cars, on March 1 there was a shortage of 18,000, and during the first week of April there was an average shortage of 12,000. He said that the 100,000 cars bought by the Railroad Administration in 1918 were equivalent only to the normal annual replacement and that practically no cars had been bought in 1919. The problem of financing the carriers to enable them to buy new cars is yet to be worked out, although the commission, the Treasury Department and the Federal Reserve Board are trying to devise a plan by which the revolving fund created by the transportation act can be made to go as far as possible. He said he had told railway executives that they were not getting as much mileage out of their cars as they should.

George Otis Smith, director of the United States Geological Survey, also testified in support of the principle of the bill. He said in part:

"The seasonal fluctuation in coal output comes from a seasonal fluctuation in demand. The consumer must be hitched on to the problem of giving the mines more orders for the spring and early summer months and of relieving both mines and railroads of their extra heavy burden in the fall and winter months. In a normal year the country over this seasonal inequality of demand calls for 35 per cent to 60 per cent more coal being mined in November, the peak load month, than in April, the usual month of greatest slump in mine operation. In Eastern coal fields the difference is less than this average and in Western fields much worse. Uneven demand thus requires more mines and more miners, both working a 75 per cent year, and conditions of unequal seasonal demand are also bad for the railroads, especially when combined with crop movements and winter interference with traffic. Stabilization is sought to lower costs and prices.

"The legislation proposed seeks to induce summer buying of coal by freight reductions in the spring months and increases in the fall and winter months. What statistics are available indicate that the rate differentials proposed by the committee of mining engineers are timed to influence

buying in what are now the months of lowest production, yet taking some of the Appalachian fields, provision might well be made for some adjustment by the Interstate Commerce Commission. In fact, the principle of the remedy seems correct, but discretion may be required in its application. It must be admitted moreover that this legislation is not a cure-all and may be expected to make conditions even worse locally, but on the whole the coal business will be helped and miners, operators and consumers eventually benefited by surer supplies of cheaper coal. To allow present conditions to continue is to invite the industrial paralysis, which has been averted rather narrowly several times in the past few years."

Service Results with Titanium-Treated Rail

PRIOR TO 1915 The Titanium Alloy Manufacturing Company, Niagara Falls, N. Y., issued a series of rail report bulletins covering a very considerable amount of work done to demonstrate the improvement effected in rail steel by treatment with ferro carbon-titanium. Engineers generally were favorably impressed with this work, but very naturally questioned whether the demonstrated reduction of segregation and the greater cleanness in the treated

"The conclusion seems to be, however, that for rails a well-deoxidized, quiet-setting steel must be used in order to avoid excessive segregation and to obtain rail with a uniform hardness at the wearing surface in the several rails of an ingot. A solution of the ingot problem means the prevention of about half of the failed rails of the country."

The average failure per year in service per 100 miles of

SCHEDULE OF MAXIMUM AND MINIMUM FAILURES PER YEAR FOR 100 TRACK MILES FOR ANY ONE YEAR

Type of rail	Open hearth		Bessemer	
	Maximum	Minimum	Maximum	Minimum
Titanium-treated	9.9	0.0	10.4	0.0
Carnegie-untreated	16.1	6.3	30.2	14.4
Colorado-untreated	16.4	5.0	.....	.....
Tennessee-untreated	18.5	10.1	.....	.....
Pennsylvania-untreated	23.0	9.3	.....	.....
Bethlehem-untreated	21.2	5.4	.....	.....
Lackawanna-untreated	23.0	12.3	21.3	15.5
Algoma-untreated	21.0	7.6	236.2	81.2
Cambria-untreated	24.0	11.3	46.8	32.4
Illinois-untreated	20.9	13.6	21.7	19.6
Maryland-untreated	31.9	9.0	19.3	13.9

track for all untreated open hearth rails covered in these schedules were 14.3, while those for titanium-treated open hearth were 6.8. For bessemer rail the average failures per year in service per 100 miles of track were 24.6 for the untreated steel and 5.2 for titanium-treated.

These results indicate clearly that a solution of the ingot

SERVICE RESULTS WITH TITANIUM-TREATED RAIL
FAILURES OF OPEN-HEARTH RAIL STEEL AS REPORTED IN A. R. E. A. BULLETIN NO. 81 OF THE RAIL COMMITTEE FOR THE PERIOD ENDING OCTOBER 31, 1918

	Mileage reported laid in				Failures per 100 track miles				Average failures per year in service per 100 track miles
	1913	1914	1915	1916	1913	1914	1915	1916	
Titanium-treated rail.....	101.14	33.32	12.66	10.21	49.5	30.0	0.0	19.6	6.8
Carnegie-untreated rail.....	761.33	487.40	722.03	873.59	82.2	25.4	16.9	13.2	8.7
Colorado-untreated rail.....	1,205.68	1,047.82	1,030.66	1,172.01	82.1	27.3	15.1	15.7	9.0
Tennessee-untreated rail.....	1,788.25	1,848.70	1,005.90	1,197.84	57.3	44.2	30.5	37.1	12.7
Pennsylvania-untreated rail.....	617.63	271.13	161.30	47.75	71.2	38.0	27.9	46.1	14.0
Bethlehem-untreated rail.....	981.95	558.68	534.25	515.07	97.3	21.6	41.0	42.5	15.0
Algoma-untreated rail.....	.....	76.62	374.74	221.08	.....	67.9	22.9	42.1	15.2
Lackawanna-untreated rail.....	1,379.17	746.61	732.50	942.87	115.3	51.0	38.8	25.5	15.3
Cambria-untreated rail.....	408.69	300.34	255.68	194.70	120.1	64.3	34.1	26.1	16.3
Illinois-untreated rail.....	3,002.97	1,472.04	1,890.44	2,476.75	96.2	83.4	40.9	26.0	16.5
Maryland-untreated rail.....	410.29	480.30	291.28	365.74	159.7	36.2	99.6	61.8	26.2
					5 years	4 years	3 years	2 years	

1913 mileage of titanium-treated rail was rolled as follows: Bethlehem, 13.21; Carnegie, 23.23; Illinois, 64.70.

1914 mileage of titanium-treated rail was rolled as follows: Lackawanna, 26.28; Illinois, 7.04.

1915 mileage of titanium-treated rail was rolled as follows: All at Lackawanna.

1916 mileage of titanium-treated rail was rolled as follows: All at Cambria.

steel would cause any material decrease of failures in service.

The data which follows has been compiled from American Railway Engineering Association Bulletin No. 81 of the Rail committee, covering all years from 1913 to 1918, in-

FAILURES OF BESSEMER RAIL STEEL FOR 1913 AND 1914 ROLLINGS, AS REPORTED IN A. R. E. A. BULLETIN NO. 81 OF THE RAIL COMMITTEE FOR THE PERIOD ENDING OCTOBER 31, 1918

	Mileage reported laid in		Failures per 100 track miles		Average failures per year in service per 100 track miles
	1913	1914	1913	1914	
Titanium-treated	94.59	31.91	51.8	0.0	5.2
Maryland-untreated	443.51	91.87	69.9	77.3	16.6
Lackawanna-untreated	94.05	62.08	77.6	85.3	18.4
Illinois-untreated	197.28	87.37	98.3	86.9	20.6
Carnegie-untreated	228.64	77.74	151.3	57.9	22.3
Cambria-untreated	60.44	11.56	243.2	129.7	40.5
Algoma-untreated	7.96	66.78	1,181.0	324.9	158.6
In service .....	.....	.....	5	4	.....
			years	years	

Mileage of titanium-treated Bessemer was rolled as follows: 1913—Lackawanna, 37.43; Illinois, 57.16; 1914—Lackawanna, 23.47; Illinois, 8.44.

clusive, in which any titanium-treated rails were rolled for roads reporting to the association. In considering these results it will be interesting to recall the statement of W. M. Wickhorst, engineer of tests of the Rail committee, in a paper read before the American Society for Testing Materials in June, 1913, which follows:

problem referred to by Mr. Wickhorst has been found in the use of ferro carbon-titanium to deoxidize and cleanse the steel, as the failures for the titanium-treated open hearth steel in service have been 48 per cent of the average for untreated open hearth and those for the titanium-treated bessemer show only 21 per cent of those for untreated bessemer, this latter very low figure being due to excessively high failures for untreated bessemer rail constituting the output from one plant.

RAILROAD PRESIDENTS who take back their properties only to worry and fret over the condition of roadbed and rolling stock overlook the fact that the liability is compensated for by a new asset. That is the far greater understanding on the part of the public in general as to the railroads' problems.—*Baltimore (Md.) News.*

COMPETITION RESTORED.—It is pleasing once more to have a call from the "traveling freight and passenger agent" who is out looking up the trade, seeking out complaints as to the service, studying the needs of the various communities, and otherwise showing an interest which has been lacking under government operation. Competition has been restored, and already the railroad service is showing an improvement.—*Sioux Falls, (S. D.) Argus-Leader.*

Proposed Grouping of Great Britain's Railways

A Plan for Uniting Approximately One Hundred Separate Railways into Six Distinct Systems

LONDON.

WHILE THE BRITISH PRESS and parliament have been chafing over what has appeared to them the inactivity of the new Ministry of Transport, evidences of the work of this department are rapidly being brought to light. The latest and most drastic of its plans for the reconstruction of the British railway systems is that of the grouping of all railways into six distinct systems. The first public information of the Ministry's plans in this respect was given through the columns of *Modern Transport* (London) and while it does not bear the official stamp of authenticity it is believed that the information was obtained from sufficiently reliable sources to warrant repeating.

Modern Transport says:

We understand that a definite scheme for the future administration of the railways of this country has been drawn up by the Ministry of Transport and is now under consideration by the cabinet. This scheme provides for the distribution of the railways of England and Wales into four well-defined districts, based largely upon the working agreements which were in operation between groups of railway companies prior to the war. The districts into which it is proposed to group the railways are as follows:

	Mileage.
(1) North Eastern and Central System: Great Central, Great Eastern, Great Northern and North Eastern Railways	4,772
(2) North Western and Midland System: L. and N. W., Midland, Lancs and Yorks, and North Staffordshire Railways	4,899
(3) South Western and South Coast System: L. and S. W., L. B. and S. C., and S. E. and C. Railways....	2,108
(4) Western and Wales System: Great Western, Cambrian and South Wales Railways (i.e., Alexandria, Barry, Brecon, Rhymney and Taff Vale)	3,594
	15,373

There are approximately 100 separate railway undertakings in England and Wales alone, and these, of course, will have to be absorbed into the various district groups, according to their geographical position. By this process of combination it is estimated that large economies will be obtained in administrative and working expenses.

The Scottish railways will together constitute a separate district and the electric railways of London will form another, as it is realized that in the latter case the best working results will be obtained by treating these undertakings separately.

Friendly Rivalry to Replace Competition

It is significant that each of the big English groups will radiate from London, and the fact that there will be two series of trunk routes to the north and two to the west, indicates a desire on the part of those responsible for the framing of the scheme to preserve a certain amount of rivalry between the large combinations. The new plans have not yet been worked out in their entirety, as extensive alterations have to be made in the present system of inter-company "running powers," which together result in the expenditure of much unnecessary engine power. Limited running powers will, however, continue to exist between the various groups to facilitate the working of cross-country services, whilst superfluous freight and passenger trains will be withdrawn. The locomotives and rolling-stock in the various groups will be pooled and a large amount of recording and other work, formerly carried out by officials of the Railway Clearing House will be dispensed with.

The Basis of the New Policy

In arriving at what is considered to be a fundamentally economic division of the railways, the Minister of Transport has been obliged to pay due regard to two factors. The first was the necessity for balancing the groups in areas of as nearly as possible equally relative importance from a commercial point of view, as it was realized that each must be self-contained in the matter of population and industry with its own route to the metropolis. Secondly, it was essential that minimum disturbance should be caused to existing undertakings, and, therefore, it has been decided to follow certain well-defined lines of development which were apparent before the war rather than adhere to a strictly geographical distribution.

Most of the companies comprised in the two groups radiating from London to the north already possess working agreements; the London & North Western, Midland and Lancashire & Yorkshire Companies are parties to one agreement, and the Great Northern, Great Central and Great Eastern Companies are comprised in the other. The latter tripartite agreement was the result of the abandonment of the railway amalgamation bill, which was deposited in Parliament by the companies concerned in 1909, but which received unfair and unwarrantable opposition from the government.

It is a noteworthy fact that whereas the legislature, from the birth of railways right up to recent years, did its best to encourage competition and deliberately set its face against a normal policy of amalgamation, it should now be anxious to secure unification on the basis for so long urged by the railway companies. On several occasions during the last 70 years the question of distributing the railways of Great Britain into districts has been brought before the notice of the government. So far as we are able to ascertain the subject was first propounded before the Select Committee on Railways in 1846. In 1872 a Select Committee on Railway Companies' Amalgamation again considered this question.

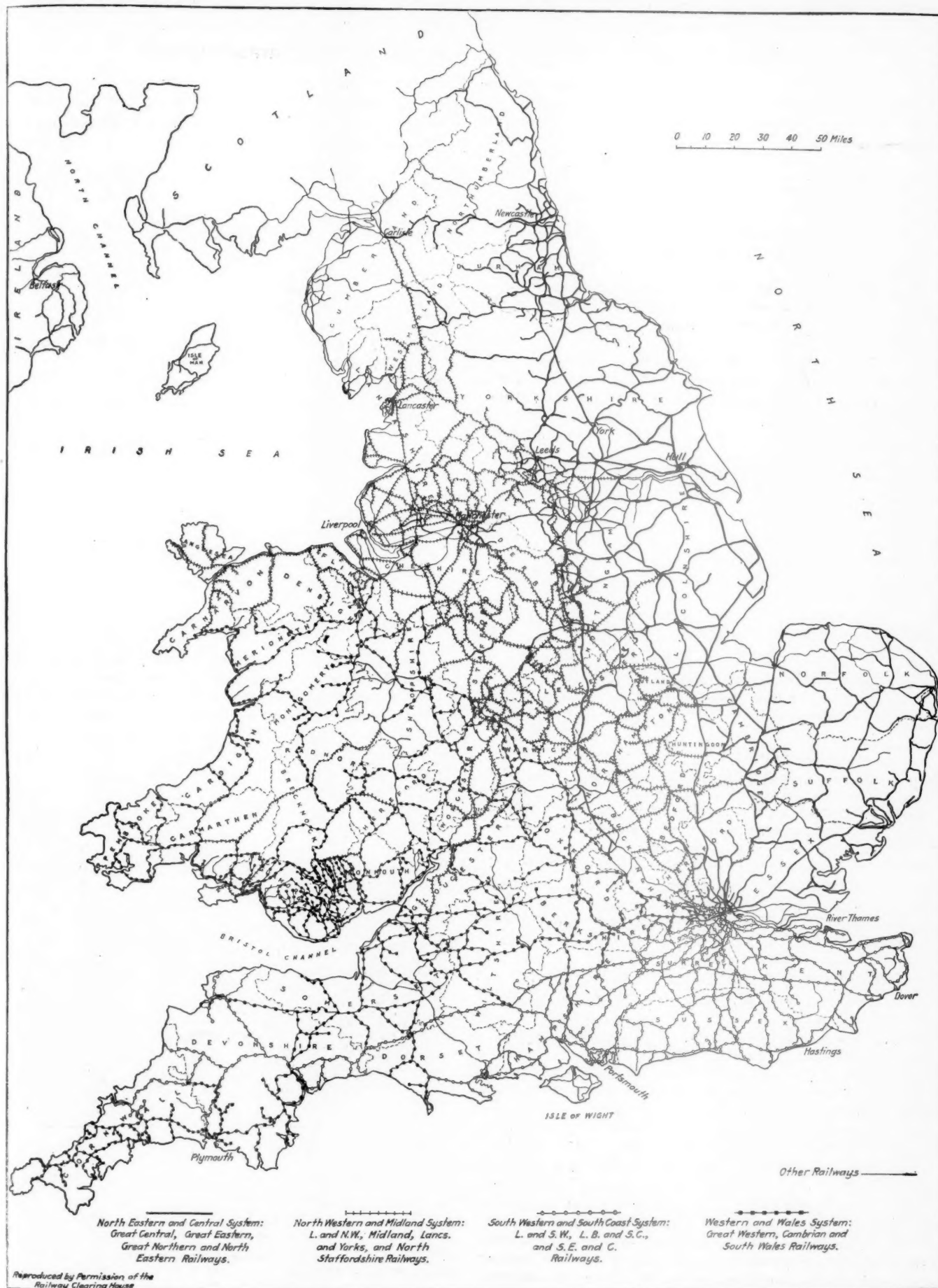
State to Purchase Small Companies

As to the means whereby the policy of the Ministry of Transport will be carried out, it is understood that the state will purchase the majority of the smaller companies and lease them to the larger undertakings comprising the various groups. In this connection we may quote the following passage from an address, delivered on March 3 to the Economic Science Section of the Royal Philosophical Society of Glasgow by W. Whitelaw, the chairman of the North British Railway:

"I think we may assume that nationalization of the railways, including the working of them by the state, is at present quite out of the running, but the more limited form of nationalization under which railway stocks might be purchased by the state and the management entrusted to private working companies, has received too little consideration. One thing is admitted on all hands—namely, that for working purposes railway systems should cover large areas; the numerous managements existing today must be reduced in one way or another to comparatively few. This reduction would, I think, be most easily and simply brought about by the state purchasing by agreement a large number of the smaller companies and leasing them to a few of the very large ones.

"In making the purchase no financial difficulties would be met with. The exchange of a state railway stock for existing company stocks is a simple clerical operation, and as regards the great bulk of the stocks no question of valuation would arise, the holders of all stocks with fixed dividends, which have been paid in full for a period of years, would receive sufficient state railway stock to yield them the same return as today, and the only stocks requiring valuation would be the ordinary stocks and any pre-ordinary stock which had not paid its dividend in full. Of course, if the state is to buy companies in this way it must be able to lease them to working companies, and negotiations for purchase of companies would have to proceed *pari passu* with negotiations for leasing; failure to agree as to leasing would prevent purchases being completed, it being assumed that the state is to have no power of working.

Not only will the grouping of the railways result in a sav-



The English Railways Showing Their Suggested Consolidation Into Four Main Systems

ing in connection with the expenses of administration, but also in the cost of supervision of traffic operation and the maintenance of way and works, as it will be possible to co-ordinate to an unprecedented extent the work and responsibilities of the many divisional officers. It is known that the government has consulted the railway companies in this new scheme of development, and they have received considerable

make this change, the same parts are required as for the clam-shell machine, with the addition of the hook.

To use this equipment with a dragline bucket the same changes are required with the exception that the tag line and trolley is not necessary and a fairlead, drag-bucket and rope must be ordered. The 30-B dragline supersedes the Class 7 Bucyrus dragline excavator. It carries a 1-cu. yd. bucket on

STATISTICS OF PRINCIPAL RAILWAYS TO BE GROUPED.

Railway Company	Total Paid-Up Capital (1912) £	Net Revenue (1912) £	Ordinary Stock Div. (1912) £	Mileage	Loco- motives	Passenger Cars	Freight Cars
North Eastern & Central System:							
Great Central	53,498,280	1,732,356	....	816	1,352	2,691	33,753
Great Eastern	54,435,194	1,965,286	2.5	1,217	1,284	5,748	29,975
Great Northern	59,657,799	2,217,194	3.58	1,005	1,357	3,537	38,374
North Eastern	80,889,532	3,841,425	6.00	1,734	2,007	4,594	116,694
Total	248,480,805	9,756,261	3.87	4,772	6,000	16,570	218,796
North Western & Midland System:							
London & North Western	125,053,447	5,803,579	6.5	1,941	3,204	9,621	82,109
Midland	203,722,343	5,515,104	3.19	2,134	3,020	6,827	118,956
Lancaster & Yorkshire	70,462,618	2,435,371	4.125	597	1,601	4,398	34,021
North Staffordshire	10,928,123	390,463	4.375	227	192	508	6,097
Total	410,166,525	14,144,517	4.33	4,899	8,017	21,354	241,183
South Western & South Coast System:							
London & South Western	56,481,682	1,929,755	5.375	981	948	4,625	14,886
London, Brigh. & So. Coast	29,431,243	1,428,948	5.00	480	611	2,917	9,736
So. Eastern & Chatham	63,512,148	1,935,643	3.81	647	721	3,945	11,110
Total	149,425,073	5,294,346	3.63	2,108	2,380	11,487	35,792
Western & Wales System:							
Great Western	99,086,455	4,961,872	5.625	3,008	3,212	8,431	78,416
Cambrian	6,532,952	123,450	—	230	98	342	2,229
Alexandra D. & R.	3,261,787	70,659	—	9	*	*	*
Barry	6,323,559	271,467	7.00	45	148	184	1,564
Brecon & Merthyr	2,085,463	43,729	—	62	*	*	*
Cardiff	6,333,300	167,566	1.38	14	30	5	1,746
Neath & Brecon	1,337,653	40,160	—	40	*	*	*
Rhymney	2,804,218	142,584	8.75	62	125	141	1,047
Taff Vale	9,821,469	372,064	3.75	124	251	317	2,296
Total	137,586,856	6,193,550	4.94	3,594	3,864	9,420	16,688
Gross Total	945,659,259	35,388,674	4.21	15,373	20,261	58,831	512,459

*Figures not available.

assistance from at least one well-known general manager, who for years has been an advocate of a fair system of combination from which the railways, the traders and the public stand to derive full benefit.

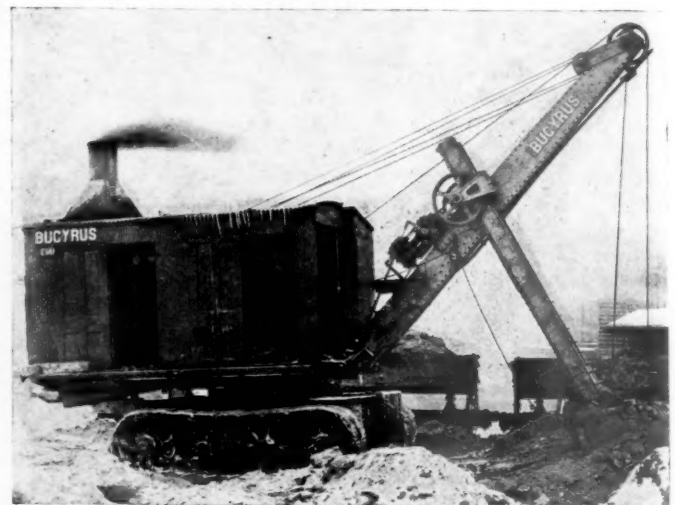
New General Utility Revolving Shovel

A NEW REVOLVING SHOVEL has been introduced which is intended to serve as a universal machine, inasmuch as it may be used as a revolving shovel, or—with the addition of a few extra parts—as a dragline excavator, a clam-shell excavator, a locomotive crane, a sewer shovel, or—with a long boom and dipper sticks—for work requiring unusually high lifts. It is being placed on the market by the Bucyrus Company, South Milwaukee, Wis., under the name 30-B and it will supersede the 18-B, $\frac{7}{8}$ -cu. yd. revolving shovel manufactured by that firm.

As a revolving shovel the machine carries a 1-cu. yd. dipper (struck measure). When heaped up, the capacity is about $1\frac{1}{4}$ cu. yd. Its truck frame is so designed that it will accommodate caterpillar traction, traction wheels or railroad trucks of any gage from 3 ft. 3 in. to 5 ft., these three mountings being interchangeable. Such a change can be made in the field at small expense. The working weight of the 30-B shovel on caterpillars is about 34 tons; on traction wheels, 31 tons, and on railroad trucks, $29\frac{1}{2}$ tons.

The 30-B will carry a 1-cu. yd. clam-shell bucket with a 35-ft. boom or a $\frac{3}{4}$ -cu. yd. clam shell bucket with a 40-ft. boom. The changes required in this installation include an additional drum on the main hoist shaft with the necessary brake clutch, thrust cylinder and operating levers, additional ropes, boom, bucket, tag line and trolley, and are readily made. As a crane the 30-B has a capacity of $9\frac{3}{4}$ tons at a 20-ft. radius when mounted on caterpillars and 9 tons at the same radius when mounted on trucks or traction wheels. To

a 35-ft. boom, or a $\frac{3}{4}$ -cu. yd. bucket on a 40-ft. boom. The caterpillar mounting is recommended, but other types may be used if conditions require. It often happens that the work requires an exceptionally high lift, as for loading wagons from deep excavation or for special work. To fulfill this demand a 26-ft. boom and 17-ft. handle may be purchased.



In Use as a Revolving Shovel with Caterpillar Tractor

In the 30-B caterpillar the use of chains in the driving mechanism has been completely eliminated. Instead, driving is accomplished through direct gearing. The treads are entirely of cast steel with a large, smooth bearing surface, enabling the machine to travel over city streets, pavements and finished roads, without any danger of damaging the road surface and allowing extensive operation over rough ground without the continual necessity of renewing the treads.

General News Department

Green for "Proceed" is now the night color in fixed signals on the Philadelphia & Reading, an order abolishing the use of white lights in these signals having gone into effect on May 1.

The Railroad Employees' Department (Division No. 2) of the American Federation of Labor, is holding its second biennial convention at Scranton, Pa., about 200 delegates being present.

Harry Rogers and **Sidney Schroeder**, flying in an H S 2-L flying boat, made the trip from Miami, Fla., to New York City, about 1,300 miles, on Friday, April 30, in 15 hours, 35 minutes. The trip was begun at 3 a. m. and was made with only one stop.

The Bureau of Valuation of the Interstate Commerce Commission held an informal meeting with representatives of carriers at Chicago on April 29 and 30. Engineers from roads in all sections of the country were present to discuss the progress made by the Bureau in the preparation of valuation reports.

The United States Supreme Court on May 3 affirmed the decision of the federal court for the district of North Dakota which granted a preliminary injunction to prevent the enforcement of a North Dakota law levying an excise tax upon mileage of trunk line railroads operating into and through the state.

Fruit to the extent of several hundred tons was dumped in the ocean, off New York, on April 30, because it had been spoiled by age; this not because of the freight blockade, but, according to the newspaper statements, because shippers in Cuba had sent it to New York to be held for higher prices—and it was held too long.

The Industrial Relations Association of America will hold its second annual convention on May 19, 20 and 21, in the Auditorium theatre, Chicago. Representatives of numerous industries throughout the country will address the meetings upon a variety of subjects relative to labor and industry. A sectional dinner meeting for railroad men will be held on May 20.

An appropriation of \$4,693,100 for the Interstate Commerce Commission for the fiscal year ending June 30, 1921, was recommended by the House Committee on Appropriations in reporting the Sundry Civil bill on April 29. This represents a reduction of \$651,504 under the appropriation for 1920 because of the reduction of valuation work; and the total is \$222,400 less than the commission asked for.

Western exhibitors at the June mechanical conventions at Atlantic City, who have been apprehensive of their ability to move their exhibits from Chicago to Atlantic City in time for the opening of the convention have been urged by George R. Carr, president of the Railway Supply Manufacturers' Association, to deliver their exhibits at the Polk street terminal of the Pennsylvania, at Chicago. By this they will expedite the movement of these materials.

Hon. Miles Poindexter, Senator from the State of Washington, has abandoned a speaking tour in the interest of his candidacy for the presidential nomination to return to Washington city and hold hearings on his so-called "anti-strike" bill. Senator Poindexter was appointed chairman of a subcommittee of the Senate committee on interstate commerce to consider the bill and he has announced that there is a prospect of early action by the committee on it.

Failure on the part of a night operator to deliver a second order regarding the passing of two passenger trains on the

Chicago & North Western resulted in a head-on collision near Lamberton, Minn., on April 29. As a result of the wreck three of the crew and two passengers on east bound train, No. 516, were killed. Orders were first given out that the two trains should pass at Sanborn, Minn., but later these orders were changed to read Lamberton. This second order was not delivered to the crew of train No. 516.

The Mississippi Valley Waterways Association, at a meeting held at St. Louis, Mo., on April 19, resolved that transportation had become the most vital question before the public, that the railroads had reached the limit of their capacity for service, and that the only means of relief was through the improvement and use of our navigable waterways. The opinion was also expressed that the railroads of today do not look upon waterways as undesirable competitors, but as a very necessary ally in the solution of the present enormous national transportation problems.

Invitations to attend the exhibition of the American Railway Supply Manufacturers' Association at Atlantic City, N. J., during the conventions of the Mechanical and of the Purchase and Stores Sections of the American Railroad Association, from June 9 to June 16 inclusive, have been issued to a number of foreign railway officers and representatives who are expected to be in the United States at that time. If other foreign railway men who have not received formal invitations should desire to visit the exhibit, credentials of identification will be issued by George R. Carr, president of the American Railway Supply Manufacturers' Association, 332 South Michigan Avenue, Chicago.

The opening for operation on or before May 1 of the Wichita Falls, Ranger & Ft. Worth between Dublin, Tex., and Ranger, has been announced. Regular service will be inaugurated on this line with through service on St. Louis-San Francisco to Dublin and on the Wichita Falls, Ranger & Ft. Worth to Ranger. The Wichita Falls, Ranger & Ft. Worth is also constructing lines from Ranger north to Breckenridge, Tex., and upon the completion of this branch, the Frisco lines will operate through service to Dublin on the new line between Ft. Worth and Ranger, according to the contract made by the Frisco with the owners of the new line. A large amount of freight traffic is expected by the Frisco through the opening up of the Stevens County oil fields and because of this development additional tracks in the Ft. Worth and Dublin yards are to be constructed. A small roundhouse will also be constructed at Dublin.

The United States Supreme Court on May 3 denied the petition of the government for a rehearing of the anti-trust suit against the United States Steel Corporation. In this petition, presented to the Court after its decision ordering the dissolution of the Reading coal and railroad combination, the government took the position that the decision of the court, if allowed to stand, would hamper the government in its prosecution of similar cases under the Sherman anti-trust law. The petition said in part: "While this case has been argued twice, yet a sense of official duty, a belief that the principal point involved is really not decided by the majority opinion, and would require a reversal, coupled with the belief of counsel that the effect of the decision is materially to change and restrict a number of recent opinions of this court construing the anti-trust statutes, and may seriously affect other cases still pending as well as the future enforcement of those acts, has convinced counsel for the United States that their duty requires them most earnestly to ask for a rehearing. It is most respectfully insisted that the opinion fails to discuss the question pressed most strongly by counsel, i. e., that the corporation itself is a combination in restraint of trade. The opinion does hold that the corporation

REVENUES AND EXPENSES OF RAILWAYS

TWO MONTHS OF CALENDAR YEAR 1920

Name of road.	Average mileage operated during period.	Operating revenues			Maintenance of way and equipment		Operating expenses			Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decrease) comp. with last year.		
		Freight.	Passenger.	Total (inc. misc.).	Way and structures.	Equipment.	Traffic.	Transportation.	General.						
Alabama & Vicksburg.....	141	\$333,385	\$135,568	\$468,953	\$78,518	\$119,774	\$11,234	\$214,842	\$18,819	\$449,609	83.58	\$94,751	\$24,709	\$69,981	\$56,293
Alabama Great Southern.....	312	1,239,938	329,938	1,569,876	1,783,244	449,802	41,007	625,934	41,700	1,404,649	78.76	378,596	48,687	329,433	161,858
Ann Arbor.....	301	607,518	97,804	705,322	78,596	174,804	12,010	403,054	21,598	690,094	87.60	97,652	33,400	64,231	16,178
Atchison, Topeka & Santa Fe.....	8,662	23,659,071	8,244,762	31,903,833	3,674,382	7,289,820	320,724	11,245,949	506,900	23,013,915	62.25	13,954,718	1,368,599	12,852,801	8,165,991
Atlanta & West Point.....	93	275,035	158,151	433,186	69,567	84,731	12,281	198,818	14,443	388,816	74.10	135,902	14,900	121,000	30,566
Atlanta, Birm. & Atlantic.....	639	680,337	138,306	818,643	169,209	279,992	28,748	438,013	24,813	967,034	99.59	3,870	32,000	28,644	270,269
Atlantic City.....	177	213,968	223,606	437,574	84,486	103,558	17,078	120,564	2,102	501,624	103.32	42,259	26,103	42,259	49,417
Atlantic Coast Line.....	4,893	8,665,173	3,158,671	11,823,844	1,538,576	2,385,938	17,878	5,472,161	250,337	9,917,749	74.27	3,441,195	400,000	3,039,684	1,091,372
Balto. & Ohio Chicago Terminal.....	10	1,128,629	69,219	1,197,848	59,521	150,436	630	51,429	23,798	485,338	121.28	77,200	53,085	130,284	157,046
Baltimore & Ohio.....	5,193	23,388,467	3,943,152	27,331,619	3,153,386	3,220,109	10,305	16,357,328	794,857	31,233,218	99.68	100,168	11,590,511	1,068,351	2,890,063
Baltimore, Chesapeake & Atlantic.....	81	89,714	28,134	117,848	16,951	75,070	2,096	121,942	7,528	223,585	158.59	82,610	7,400	90,010	81,221
Bangor & Aroostook.....	658	693,619	136,746	830,365	218,689	261,114	7,730	435,520	22,601	938,031	100.49	4,659	49,198	53,888	76,003
Beaumont, Sour Lake & Western.....	118	223,386	57,367	280,753	301,453	746,025	3,564	103,640	9,079	241,986	80.27	59,467	4,700	54,751	24,438
Belt Ry. Co. of Chicago.....	31	1,128,629	69,219	1,197,848	59,521	150,436	630	51,429	14,382	739,097	93.49	31,364	20,090	10,997	107,332
Bessemer & Lake Erie.....	217	293,934	37,573	331,507	89,261	63,480	21,759	577,200	49,657	1,386,025	108.92	11,455	27,800	141,358	39,995
Birmingham & Garfield.....	36	293,934	37,573	331,507	63,042	75,799	3,730	71,154	6,664	224,654	74.12	78,441	14,850	63,589	44,678
Birmingham Southern.....	31	51,453	72,982	124,435	7,670	9,965	1,693	48,445	6,729	74,503	102.08	1,521	3,508	5,029	37,960
Boston & Maine.....	2,257	6,385,019	3,187,252	9,572,271	1,782,326	2,964,336	89,990	7,679,250	369,649	12,944,983	114.90	1,676,422	453,323	2,130,042	1,616,338
Brooklyn Eastern District Terminal.....	9	150,796	170,288	321,084	69,177	144,570	117,350	6,992	338,089	198.54	167,801	11,886	179,687	92,053	3,665
Buffalo & Susquehanna.....	296	4,105,590	13,058	4,118,648	59,083	199,667	4,854	179,219	18,770	461,592	104.54	30,055	6,700	36,756	3,665
Buffalo, Rochester & Pittsburgh.....	589	2,180,686	244,120	2,424,806	379,018	1,024,403	29,853	1,316,223	62,762	2,817,004	110.66	271,258	50,000	321,898	148,833
Canadian Pacific Lines in Maine.....	233	401,545	146,403	547,948	76,401	136,118	5,927	148,424	6,891	262,982	117.69	101,143	24,400	125,543	58,543
Central & Western Carolina.....	282	952,039	61,303	1,013,342	155,802	317,540	8,230	359,906	27,933	678,942	82.22	187,874	5,184	182,638	25,799
Central New England.....	301	737,201	481,155	1,218,356	239,524	369,847	5,361	630,428	30,303	1,295,806	154.05	454,651	35,600	490,309	458,487
Central of Georgia.....	1,924	2,576,094	1,042,757	3,618,851	692,299	929,299	83,552	1,751,920	127,273	3,510,368	79.92	881,160	195,198	76,226	671,660
Central Railroad of New Jersey.....	686	5,019,965	1,173,040	6,193,005	1,005,388	2,422,341	44,238	4,078,464	177,075	7,738,341	113.45	920,086	444,473	1,364,538	1,511,804
Central Vermont.....	411	596,832	167,057	763,889	148,693	242,446	24,305	717,164	35,330	1,271,871	138.93	356,426	34,800	391,224	217,119
Charleston & Western Carolina.....	342	456,484	102,247	558,731	119,017	144,666	6,988	285,319	2,799	558,787	95.31	27,456	10,456	10,456	20,705
Chesapeake & Ohio.....	2,516	10,038,822	1,412,101	11,450,923	1,710,888	3,370,766	104,262	5,191,833	237,996	10,671,666	84.32	1,985,226	379,620	1,604,802	527,363
Chicago & Alton.....	1,050	2,966,031	902,699	3,868,730	1,710,888	3,370,766	104,262	5,191,833	237,996	10,671,666	84.32	1,985,226	379,620	1,604,802	527,363
Chicago & Eastern Illinois.....	1,131	3,202,906	788,552	3,991,458	497,230	1,350,179	52,424	2,236,373	110,078	4,023,758	92.89	326,123	129,359	196,380	37,400
Chicago & Erie.....	1,269	1,398,979	108,114	1,507,093	166,012	374,936	46,782	2,038,330	96,885	4,072,214	81.60	917,923	170,000	747,695	112,823
Chicago & North Western.....	8,090	15,150,246	5,304,275	20,454,521	2,864,913	5,896,933	169,753	13,365,321	540,282	27,038,506	94.91	1,235,491	1,555,621	75,707	142,907
Chicago, Burlington & Quincy.....	9,371	19,690,745	5,078,510	24,769,255	2,853,967	5,757,605	179,834	12,279,660	67,534	21,999,968	75.85	7,786,995	1,098,044	6,688,882	2,965,166
Chicago Great Western.....	1,496	2,709,413	856,697	3,566,110	437,043	1,024,326	60,673	2,010,809	99,120	3,662,123	87.62	517,207	109,842	406,951	36,498
Chicago, Indianapolis & Louisville.....	654	1,522,733	430,544	1,953,277	214,776	648,271	40,411	1,038,591	58,233	2,029,141	86.67	312,011	94,611	217,371	21,747
Chicago Junction.....	12	388,068	37,312	425,380	80,384	103,984	19,960	7,207	135,077	79.55	96,990	19,232	77,757	24,884	24,884
Chicago, Milwaukee & St. Paul.....	10,628	17,228,184	4,293,197	21,521,381	3,848,348	7,233,388	14,207,189	742,482	26,449,966	100.85	220,230	1,208,736	1,428,966	1,011,129	1,011,129
Chicago, Peoria & St. Louis.....	247	324,073	98,695	422,768	64,311	168,466	4,411	196,761	108,995	349,800	108.53	34,980	12,200	47,185	9,852
Chicago, Rock Island & Gulf.....	463	818,312	216,071	1,034,383	101,482	212,954	14,374	443,532	25,729	859,352	71.79	337,635	28,034	309,435	284,414
Chicago, Rock Island & Pacific.....	7,595	14,014,833	4,739,314	18,754,147	3,130,247	4,796,957	216,810	9,723,230	417,366	18,327,995	82.99	3,754,767	759,839	2,993,327	3,217,673
Chicago, St. Paul, Minn. & Omaha.....	1,749	3,485,604	1,224,514	4,709,118	415,299	1,014,753	39,090	2,580,056	132,461	4,210,415	77.65	1,211,375	275,412	934,928	400,264
Chicago, Terre Haute & S. E.....	374	790,724	45,447	836,171	81,805	272,919	10,266	397,280	19,860	785,678	90.39	83,486	36,000	47,486	144,741
Cincinnati, Lebanon & Northern.....	76	143,474	15,776	159,250	25,664	68,236	4,092	120,648	2,749	221,389	115.67	30,002	10,458	40,462	17,167
Cincinnati, Indianapolis & Western.....	321	480,992	97,140	578,132	98,934	265,953	12,798	333,368	28,537	741,480	106.53	45,478	22,071	67,555	52,195
Cincinnati, New Orleans & Texas Pacific.....	337	2,269,083	606,580	2,875,663	429,606	860,957	70,531	1,159,591	75,963	2,625,508	80.10	652,149	76,072	575,040	65,834
Cincinnati Northern.....	251	388,068	37,312	425,380	80,384	103,984	19,960	7,207	135,077	79.55	96,990	19,232	77,757	24,884	24,884
Cleveland, Cincinnati, Chic. & St. Louis.....	2,408	9,383,750	2,644,449	12,028,199	1,038,806	2,581,336	249,021	5,863,777	234,943	10,040,698	73.69	4,080,316	357,285	3,720,240	2,471,170
Colorado & Southern.....	1,099	1,758,541	365,138	2,123,679	231,906	56,678	20,811	817,209	67,580	1,689,819	69.42	744,099	101,980	641,980	263,080
Colorado & Wyoming.....	43	23,277	1,591	24,868	19,306	24,873	508	54,046	7,799	106,533	97.56	2,658	10,000	7,342	40,468
Cumberland Valley.....	163	731,223	147,438	878,661	144,334	207,232	16,221	350,485	26,275	745,186	75.43	242,715	11,395	231,284	216,502
Delaware & Hudson.....	875	4,291,021	465,502	4,756,523	607,472	1,831,343	36,457	2,294,613	220,870						

did not achieve a monopoly. That point arises, however, under the second section of the Sherman act. The opinion does not decide the question raised under the first section, namely, that the corporation is a combination in restraint of trade."

The conference report on the bill appropriating \$300,000,000 for the Railroad Administration was adopted by the Senate on May 3 and by the House on May 4 after the conferees had agreed to omit the Senate amendment intended to make explicit provision for reimbursement of the short lines relinquished from federal control for any "deficit or decrease" in net operating income for the federal control period. The short lines had received a letter from the statistician of the Interstate Commerce Commission interpreting the provisions of the transportation act for the reimbursement of these lines as applying only to those that had deficits during the federal control period.

Striking Switchmen Forfeit Seniority Rights

The last move in the strike of switchmen in the Chicago district was made on May 5, when the following statement was issued on behalf of the railroads involved:

"In reference to men who continue on strike, it was explained that the individual railway managements, several days before the expiration of final notices to return to work which were given to striking switchmen, mailed letters to each individual employee and posted notices on bulletin boards informing each one that unless he returned to work on or before the date mentioned, he would not subsequently be taken back except as a new employee. As to those men who thereafter failed to return to work at the times mentioned, the railways employed men to take their places, many of whom moved to Chicago from other points. These new men, together with those who remained loyal to the service, were promised that the seniority rights thus gained over those on strike would be preserved, and good faith requires that that promise be scrupulously kept."

"It is therefore announced on behalf of the railways, there could be no change in this position and that, insofar as positions were still open, men on strike would generally be returned to service on application, but without restoration of former rights."

Conditions in the Chicago district are improving rapidly with the addition of new men and the continued return of strikers, many of whom are re-entering service with other roads than those for which they have formerly worked. Railway officers freely predict that conditions will be normal by the first of next week, although it will take some time to move the accumulation of inbound and outbound freight at Chicago.

Disastrous Fire at Waycross.

The shops of the Atlantic Coast Line at Waycross, Ga., were damaged by fire on the night of April 8, to the amount of about \$500,000. The fire started in the car repair shops about 9 o'clock in the evening and the flames were fought all night. The car shops, and a small blacksmith shop were completely destroyed, together with the combustible portions of 200 box cars. About 500 men were thrown out of work temporarily.

Proposed Amendment to Valuation Act

Senator Cummins on May 3 introduced in the Senate a bill to strike out of the valuation act the direction to the Interstate Commerce Commission, which was involved in the recent decision of the Supreme Court in the Kansas City Southern case, to ascertain and report "the present cost of condemnation and damages or of the purchase in excess of original cost or present value" of railroad lands. The commission had reported that this was impossible, but the court held that the commission was required to comply with the law.

Freight By Automobile

A great impetus to transportation by motor truck has been given by the traffic demoralization, following a severe winter and the "outlaw" railway strike. Highways between scores of cities are dotted, day and night, by "motor-cades." New England and the industrial middle west are conspicuous new patrons of the

long-distance motor truck. There are now on the road, headed west, nearly 200 five-ton trucks in fleets of 20, carrying tire fabrics to the Goodyear Tire and Rubber Company, Akron, Ohio, in what is declared to be the biggest truck venture yet made. The round trip takes about a fortnight, the route running through New Haven, New York and over the Lincoln highway by way of Philadelphia and Pittsburgh, with spare trucks kept available in the mountains.

These trucks, costing about one dollar a mile, and each insured at \$25,000 for the trip, are carrying a million pounds of cotton fabric, now valued at \$2.50 a pound, making the total consignment worth about \$2,500,000. The fabric is the product of seven mills in New Bedford and Connecticut. The trucks will bring back tires and rubber heels. Formerly these goods all traveled by rail. As high as \$3.25 a pound is now bid for the best spot Sea Island cotton. The steam roads were already groaning under their traffic burden, being billions behind in proper provision for serving the nation, before their latest troubles with weather and with labor came upon them. One of the worst sufferers by the freight blockade has been the automobile industry. But it may get a later compensation in the opportunity of self-demonstration given to the truck.—*Boston News Bureau.*

"An Increased Production Convention"

This is the name which has been given to the eighth annual meeting of the Chamber of Commerce of the United States held last week at Atlantic City, N. J., and reported in the *Railway Age* of April 30, page 1303; and the resolutions adopted at the close of the meeting, emphasizing this idea, are summarized as follows:

"The country's problems can be largely solved through increased production and economy must be practiced by public authorities and by every citizen.

"A treaty of peace should be put into effect without more delay.

"The government should refrain from entering any field of business where it can be conducted by private enterprise.

"American ideals should be maintained.

"Agricultural organizations should be taken into the Chamber as an integral part of business.

"Railroad transportation facilities should be built up.

"Congress should expedite shipping legislation as the means of giving the country a merchant marine.

"Adequate appropriation should be made for development of waterways.

"The traction situation should be improved.

"Pivotal industries should be protected.

"It is the duty of everyone to join in preventing fire waste.

"It is imperative that the War Department delay no longer in making final disposition of war plants and machinery.

"Public welfare requires that immediate compensation be made for war damages.

"Changes in postal rates without determination of the results on business enterprise may have inequitable effects.

"A national budget should be adopted.

"The Chamber should hold a referendum on taxation.

"The Chamber opposes a general cash bonus given to all men who served in the war without any discrimination.

"Provision should be made for supplying populations with the necessities of life in emergencies."

Air Brake Association Meets.

The twenty-seventh annual convention of the Air Brake Association was called to order Tuesday morning at the Hotel Sherman, Chicago, by the president, T. F. Lyons. Following the usual opening exercises, Frank McManamy, manager, department of equipment, Division of Liquidation of Claims, United States Railroad Administration, addressed the convention informally. He made a number of suggestions to the association for consideration, the principal one of which was the need for the reorganization of air brake supervision on the railroads to include an expansion of the number of supervisors assigned exclusively to air brake work and the need for special facilities for the maintenance of air brakes at all terminals—not the principal terminal only—of each railroad.

Following Mr. McManamy's address, President Lyons delivered his official address. Badges were presented to past presidents Albers, Slattery and Barry, and other matters of associa-

tion business were taken up. The consideration of technical papers and committee reports was taken up at the afternoon session. A full account of the proceedings of the convention will appear in a later issue.

February Shows Large Deficit

The railroads during February, the last month of government operation, in spite of an increase in freight tonnage of 27 per cent, had an operating deficit of \$12,217,639, as compared with a net operating income in February, 1919, of \$9,788,655, according to the monthly bulletin of revenues and expenses issued by the Interstate Commerce Commission. The bulletin covers 189 Class I roads and 15 switching and terminal companies. As the rental guaranteed by the government is approximately \$75,000,000 a month this represents a loss to it for the month of \$87,000,000. For the two months of the calendar year the net operating income is shown as \$51,959,904, but as this includes over \$50,000,000 as an estimate of back mail pay the government's loss for the two months alone was in the neighborhood of \$150,000,000. The February figures as compiled by the commission are shown in the table.

RAILROAD EARNINGS IN FEBRUARY, 1919 AND 1920

Item	Amount		Per mile of road operated	
	1920	1919	1920	1919
1. Average miles operated..	235,075.35	234,657.57	.....	.....
Revenues:				
2. Freight	\$298,917,221	\$242,295,875	\$1,272	\$1,033
3. Passenger	82,632,766	79,318,347	351	338
4. Mail	9,553,603	4,171,441	40	18
5. Express	11,683,867	7,823,221	50	33
6. Other transportation...	10,752,614	8,570,129	46	37
7. Incidental	10,850,792	9,803,947	46	42
8. Joint facility—Cr.....	654,620	539,725	3	2
9. Joint facility—Dr.....	188,987	137,456	1	1
10. Ry. op. revenues.....	424,856,496	352,385,229	1,807	1,502
Expenses:				
11. Maint. way	64,415,432	54,275,209	274	231
12. Maint. equip.	118,731,081	90,020,341	505	384
13. Traffic	4,970,805	3,564,322	21	15
14. Transportation	211,889,157	164,219,880	901	700
15. Misc. operations.....	4,390,258	3,357,512	19	14
16. General	10,962,274	10,202,928	47	44
17. Transportation for investment—Cr.....	355,970	492,551	2	2
18. Ry. op. expenses.....	415,003,037	325,147,641	1,765	1,386
19. Net revenue from r. op..	9,853,459	27,237,588	42	116
20. Railway tax accruals (excl. "war taxes")...	17,676,394	15,043,697	75	64
21. Uncollectible	101,337	58,377	1	.....
22. Ry. op. income.....	*7,924,272	12,135,514	*34	52
23. Equip't rents (Dr. Bal.)	2,716,270	1,430,713	11	6
24. Joint fac. rent (Dr. Bal.)	1,577,097	916,146	7	4
25. Net of items 22, 23, 24..	*12,217,639	9,788,655	*52	42
26. Per cent exps.....	97.68	92.27	.....	.....

*Debit item.

Shippers' Calls for Cars

A delegation of representatives of farmers' organizations, grain shippers and commercial bodies from western states appeared before the Senate and House committees on interstate commerce at Washington this week to describe the serious conditions which they said would result unless steps are taken to increase the car supply. They urged that Congress increase the revolving fund recently appropriated from \$300,000,000 to \$600,000,000 in order that increased loans might be made to the railroads for the purpose of buying cars. Senator Cummins asked some of the railway executives to appear before his committee on Thursday and announced his intention of calling in representatives of the investment bankers later. On Wednesday the delegation also held a conference with members of the Interstate Commerce Commission and asked for orders that cars be returned to the western roads and that they be allowed to retain 100 per cent of their ownership.

J. W. Shorthill, of Omaha, chairman of the delegation, said the shortage of cars was tying up the business of the country, creating increased business expenses and causing prices of commodities to go higher than was necessary.

G. F. Ewe, representing the Minneapolis Chamber of Commerce, said millions of bushels of wheat were tied up in the northwest because of the lack of cars and that unless this grain could be moved the banks could not finance the new crop of wheat. He said that every pressure had been brought to bear on the car service commission in the last 60 days, but without result. He declared it was impossible to convey the seriousness of the situation. He said the Interstate Commerce Commission would be asked to issue an order requiring box cars to be returned to owning lines.

If all of the appropriation were used for new cars, it would not buy more than 100,000 and the needs were four times as great as that.

R. E. Lawrence, secretary of the Farmers' Co-operative Grain Dealers' Association of Kansas, told of conditions in Kansas where he said that grain elevators could not get cars to move grain.

C. M. Reed, member of the Court of Industrial Relations of Kansas, said that because of lack of cars the excess of grain on hand as of April 17, over normal, was 28,524,000 bushels. There were 21,934,000 bushels of wheat on hand on farms and in country elevators of that date as against 5,000,000 bushels, the normal amount for that time of the year. He said because of the inability to move the grain crop many state banks had taken up farmers' notes far in excess of the amount permitted by the laws of the state, but that if such action had not been taken the state would have faced disaster. He said that in the last eight months no flour mill in the state had been able to operate full time, because they could not get cars. Mr. Reed said he did not agree that an order should be made requiring 100 per cent ownership on line, but that he favored pooling of cars as the method of meeting the present situation.

A. Sykes, of Ida Grove, Ia., speaking for live stock raisers, declared that unless provision were made for adequate transportation facilities for the shipment of live stock the farmers in the middle west would simply quit raising cattle and hogs; they would not stand the losses incurred by the lack of cars at the time when the livestock must be shipped. The producers of the middle west would gladly pay increased taxes necessary to provide adequate transportation facilities; they would rather do that than suffer the losses due to lack of cars. He pointed out that at present \$100,000,000 worth of meat products on the farms in Iowa is delayed in moving to market because of the car shortage.

Commissioners Clark, Atchison, Hall and Daniels heard the farmers' appeal. Chairman Clark said it would give the commission genuine satisfaction if it could grant the relief sought and that the commission would do everything within its power to correct the situation. However, he added, the commission was not making any definite promises in the matter because it did not know what new conditions might develop.

A. G. Gutheim, member of the commission Car Service of the American Railroad Association, was present at the conference at the request of the commission. He said the process of getting cars back to the owning lines would take months and not weeks. The situation as to grain and livestock cars was disappointing and he sympathized with the grain and livestock interests. Every effort was being made to correct existing conditions. While there was a surplus of box cars in the east, it was equally true that there was a surplus of coal cars in the west, and the situation as to coal cars was just as serious as that with respect to grain and livestock cars.

Government Operation of Telegraph and Telephone Wires Cost \$14,000,000

Operation of the telegraph and telephone companies during the war cost the government \$14,005,565, Postmaster General Burleson informed Congress on May 4 in asking an appropriation of that amount to liquidate the affairs of the federal wire administration.

Mr. Burleson said that no loss would have been suffered had the government retained operation of the lines "a few months longer" or had rate increases not been temporarily halted by court injunction. "The deficit," wrote Mr. Burleson, "is the outcome of operations involving gross revenues of over \$600,000,000, and therefore represents less than 2½ per cent of the total gross revenues."

The Air Brake Appliance Association Exhibit

The exhibits of the Air Brake Appliance Association during the Air Brake Association convention held at the Sherman Hotel, Chicago, this week, occupy the entire space available. The following is a list of the companies exhibiting, with the names of the representatives at the booths and the products on display:

American Brake Shoe & Foundry Co.—Diamond S. brake shoes. Represented by L. R. Dewey, R. S. Stewart, J. W. Waters and C. F. Weil.

Ashton Valve Company, Boston, Mass.—Gages, gage testers and safety valves, portable boiler test pump, inspectors' testing and proving outfit. Represented by J. W. Motherwell and J. F. Gettrust.

Barco Manufacturing Company, Chicago, Ill.—Metallic engine-tender air, steam, oil and water connections, air reservoir and pump and distributing valve joint connections, metallic car steam heat connections, automatic smoke box blower fitting, loose bolt cross-head and shoes, terminal metallic steam heating and air testing sets. Represented by F. N. Bard and C. L. Mellor.

Boss Nut Co., Chicago.—Exhibiting Lock nuts and bolts and rivets. Represented by J. A. MacLean, J. W. Fogg and A. W. MacLean.

Broschart Treadless Pipe Coupling Company, Trenton, Mo.—Emergency train-line repair coupling. Represented by J. L. Broschart.

Chicago Railway Equipment Company, Chicago, Ill.—Brake beam supports, and moving picture of brake beams, their manufacture and use. Represented by E. G. Busse and E. A. LeBeau.

Crane Co., Chicago.—Railroad unions and union fittings for air brake equipment. Represented by F. W. Venton and Chas. Ammison.

Detroit Lubricator Company, Detroit, Mich.—Lubricators and flange oiler. Represented by A. G. Machesney.

Dixon Crucible Company, Joseph, Jersey City, N. J.—Graphite and graphite products for railroad service. Represented by L. H. Snyder, Wm. Ernst and J. E. Simpson.

Edna Brass Manufacturing Company, Cincinnati, Ohio.—Lubricators, injectors and boiler checks, including U. S. R. A. standard locomotive appliances. Represented by E. O. Corey and H. A. Glenn.

J. B. Ford Co., Wyandotte, Mich.—Metal cleaner for removing oils and greases. Represented by H. J. Wilwerth, George Lawrence and A. O. Gilbertson.

Garlock Packing Company, Palmyra, N. Y.—Air brake gaskets, air pump throttle, cab cock and reverse gear packing and spiral packing. Represented by W. G. Cook.

Gustin-Bacon Mfg. Co., Kansas City, Mo.—Brake cylinder lubricant and air pump strainer. Represented by John W. Foyle, Fred C. Fuller, E. A. Emery, Fred Speer and James S. Hearons.

Johns-Manville Company, H. W., New York.—Air pump, throttle and brake cylinder packing and packing cups and expander rings. Represented by J. E. Meek, C. E. Murphy, Fred Horne, G. Christenson, L. S. Wilbur, J. C. Younglove, P. C. Jacobs, P. R. Austin and Walter Stewart.

Leslie Company, The, Lyndhurst, N. J.—Steam heat regulators and removable injector coupling nuts. Represented by S. I. Leslie and J. J. Cizek.

Manning, Maxwell & Moore, Inc., New York City.—Ashcroft gages, Consolidated safety valves, Hancock inspirator equipment. Represented by C. L. Brown and James Briscoe.

Nathan Manufacturing Company, New York.—Injectors, lubricators, boiler check, gage cocks, non-lifting coal sprinkler. Represented by W. E. Brumble, Richard Welch, W. R. Walsh and F. C. Davern.

New York Air Brake Co., New York City.—Represented by C. P. Lovell, L. W. Sawyer, Jas. A. Hicks, Geo. Kleifges, Wm. Owens and N. A. Campbell.

New York & New Jersey Lubricant Company, New York.—Non-fluid-oil brake cylinder lubricant and N. F. O. triple valve lubricant. Represented by J. H. Bennis and F. J. Barnes.

Ohio Injector Company, Chicago, Ill.—Injectors, non-lifting injectors, lubricators, flange oilers, automatic drifting valves, waterglass protectors, boiler checks and feed hose strainers. Represented by A. C. Beckwith and W. S. Furry.

Pyle-National Co., Chicago.—K-2 turbo generator, combined white and red electric back up lamp, white back up lamp and 18-in. standard incandescent headlight. Represented by Wm. Miller, Crawford McGinnis and J. Wall Johnson.

Railway Devices Co., St. Louis, Mo.—Spiral pipe clamps and angle cock holder. Represented by Roland M. Hoerr.

Railway Review, Chicago.—Represented by L. H. Lozier and J. M. Lammedee.

Sargent Co., Chicago.—Exhibiting Gage cocks, water glass protectors, Sargent safety water gages, Reflex water gages and blower valves. Represented by Geo. S. Garren.

Simmons-Boardman Publishing Company, New York.—*Railway Age* and *Railway Mechanical Engineer*. Represented by C. B. Peck and J. M. Rutherford.

Sunbeam Electric Mfg. Co., Evansville, Ind.—Turbo generator, headlight and accessories. Represented by C. E. Kinnaw and H. A. Varney.

U. S. Metallic Packing Company, Philadelphia, Pa.—King type air pump packing. Represented by M. B. Brewster, H. E. Hyslop and L. B. Miller.

Guilford S. Wood, Chicago.—Hose protectors. Represented by Robert J. Lillie.

Anchor Packing Company, Chicago.—Packing. Represented by John P. Landreth.

Duff Manufacturing Company.—Jacks. Represented by C. N. Thulin.

Galena Signal Oil Company, Franklin, Pa.—Represented by Geo. W. Buckpitt.

Gould Coupler Company, New York City.—Gould universal automatic brake slack adjuster. Represented by William H. Sauvage.

New York Belting & Packing Company, New York.—Represented by L. F. Purtil.

Wm. Sellers & Co., Philadelphia, Pa.—Represented by J. R. New.

United States Rubber Company, New York.—Mechanical Goods Division. Air brake hose, pneumatic tool hose, gaskets and packings. Represented by C. S. Prosser.

Westinghouse Air Brake Company, Pittsburgh, Pa.—Universal valve, sectional H6 brake valve with collapsible equalizing piston, angle cock with side vent, No. 4 brake pipe vent valve and auxiliary devices governor. Represented by J. B. Wright, F. H. Parke, A. L. Berghane, E. H. Dewson, H. H. Burns, F. B. Johnson, J. S. Y. Fralich, E. Weaver, A. G. Houston, R. E. Miller, L. M. Carlton, L. Wilcox, F. W. Nagle, T. L. Burton, A. B. Brown, C. C. Farmer, F. B. Farmer, H. A. Wahlert, C. D. Foltz, O. W. Dudley, T. H. Thomas, H. Orchard, T. W. Newburn, John Henry, J. C. McClune, J. W. Read, M. O. Davis, John Hume and Charles McVinstoy.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—F. M. Nellis, Room 3014, 163 Broadway, New York City. Next convention, May 4-7, Hotel Sherman, Chicago.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, Supervisor of Demurrage and Storage, C. & N. W. Ry., Chicago.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—S. W. Derr, C. R. R. of N. J., Philadelphia, Pa.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, Illinois Central, Chicago. Next annual meeting, June 15, 1920, Minneapolis, Minn.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, C. & E. I. R. R., 332 South Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Union Station, St. Louis, Mo.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—E. B. Burritt, 8 W. 40th St., New York.

AMERICAN ELECTRIC RAILWAY MANUFACTURERS' ASSOCIATION.—C. F. J. Dell, 50 E. 42nd St., New York.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—Otto E. Schlinck, 185 W. 5th St., Peru, Ind.

AMERICAN RAILROAD ASSOCIATION.—J. E. Fairbanks, 75 Church St., New York.

Section I, Operating (including former activities of Association of Railway Telegraph Superintendents).—W. J. Fripp (chairman), N. Y. C. R. R., New York, N. Y.

Telegraph and Telephone Division.—J. F. Caskey (chairman), Supt. of Telegraph, Lehigh Valley.

Section II, Engineering.—E. H. Fritch, 431 South Dearborn St., Chicago.

Signal Division.—H. S. Balliet, 75 Church St., New York.

Section III, Mechanical (including former activities of Master Car Builders' and Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago. Next convention, June 9-16, 1920, Atlantic City, N. J.

Section IV, Traffic.—Robert C. Wright (chairman), Assistant Director, Division of Traffic, U. S. R. A., Washington, D. C.

Section V, Transportation (including former activities of Association of Transportation and Car Accounting Officials).—E. J. Pearson (chairman), Federal Manager, N. Y., N. H. & H. R. R., New Haven, Conn.

Section VI, Purchases and Stores (including former activities of Railway Storekeepers' Association).—J. P. Murphy, N. Y. C. R. R., Collinwood, Ohio. First annual meeting, June 14-16, 1920, Atlantic City, N. J.

Section VII, Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Austin Station, Chicago. Next convention, October 26-28, 1920, Atlanta, Ga.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railroad Association, Section II.) E. H. Fritch, 431 South Dearborn St., Chicago.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—(See American Railroad Association, Section III, Mechanical.)

AMERICAN RAILWAY PERISHABLE FREIGHT ASSOCIATION.—E. F. McPike, 135 E. 11th Place, Chicago. Regular meetings, 2nd Wednesday in March and September.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—R. D. Fletcher, 1145 East Marquette Road, Chicago.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY FOR TESTING MATERIALS.—C. L. Warwick, University of Pennsylvania, Philadelphia, Pa. Next annual meeting, June 21, 1920, New Monterey Hotel, Asbury Park, N. J.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Col. H. S. Cracker (acting secretary), Engineering Societies Building, 33 W. 39th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 33 W. 39th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

AMERICAN STEEL TREATERS' SOCIETY.—W. H. Eisenman, 154 East Erie St., Chicago.

AMERICAN TRAIN DESPATCHERS' ASSOCIATION.—D. L. Darling, Northern Pacific Ry., Spokane, Wash.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Mt. Royal Sta., Baltimore, Md. Next annual meeting, January 25-27, 1921, San Francisco.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—Willis H. Failing, C. R. R. of N. J., Jersey City, N. J. Next meeting, May, 1920, Atlantic City.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Semi-annual meeting, June 14, Hotel Dennis, Atlantic City.

ASSOCIATION OF RAILWAY EXECUTIVES.—Thomas De Witt Cuyler (chairman), 61 Broadway, New York, N. Y.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—(See American Railroad Association, Section I, Operating.)

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—(See American Railroad Association, Section V. Transportation.)

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—G. R. McVay, Barrett Company, Chicago.

CANADIAN RAILWAY CLUB.—W. A. Booth, 131 Charton St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, New Morrison Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS.—Thomas B. Koenke, Federal Reserve Bank Bldg., St. Louis, Mo. Meetings first Tuesday in month at the American Hotel Annex, St. Louis.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meetings, 2d Thursday in November and 2d Friday in January, March, May and September, Hotel Statler, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—J. C. Keene, General Car Inspector, Wabash R. R., Decatur, Ill.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—D. B. Wright, Lehon Company, 45th and Oakley Sts., Chicago.

CINCINNATI RAILWAY CLUB.—H. Boutet, 101 Carew Bldg., Cincinnati, Ohio.

EASTERN RAILROAD ASSOCIATION.—D. G. Stuart, Washington, D. C.

FREIGHT CLAIM ASSOCIATION.—(See American Railroad Association, Section VIII, Freight Claims.)

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Sta., Chicago. Regular meetings, Wednesday preceding 3d Friday in month, Room 856, Insurance Exchange Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, B. & O., Lima, Ohio.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, 702 E. 51st St., Chicago. Next annual meeting, May 24-27, 1920, Hotel Sherman, Chicago.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Next convention, September 7-10, Hotel Sherman, Chicago.

MAINTENANCE OF WAY MASTER PAINTERS' ASSOCIATION.—E. E. Martin, Union Pacific R. R., Room No. 19, Union Pacific Bldg., Kansas City, Mo. Next convention, October 5-7, 1920, Detroit, Mich.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Next annual meeting, May 25-28, Curtis Hotel, Minneapolis, Minn.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass.

MASTER CAR BUILDERS' ASSOCIATION.—(See American Railroad Association, Section III, Mechanical.)

NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.—J. J. Schaffly, Potosi Tie & Lumber Company, St. Louis, Mo.

NATIONAL ASSOCIATION OF RAILWAY AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Next convention, November 9, 1920, Washington, D. C.

NATIONAL FOREIGN TRADE COUNCIL.—O. K. Davis, 1 Hanover Square, New York. Next convention, May 12-15, 1920, San Francisco.

NATIONAL RAILWAY APPLIANCE ASSOCIATION.—C. W. Kelly, Kelly-Derby Co., Peoples Gas Bldg., Chicago.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, excepting months of June, July, August and September.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meeting 2d Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Bldg., Washington, D. C. Next convention, May 12, 1920, Hotel Traymore, Atlantic City, N. J.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Americus Club House, Pittsburgh, Pa.

RAILWAY DEVELOPMENT ASSOCIATION.—D. C. Welty, Missouri Pacific R. R., Little Rock, Ark.

RAILWAY ELECTRIC SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—D. L. Eubank, Galena Signal Oil Company, Richmond, Va.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, C. & O., Richmond, Va.

RAILWAY SIGNAL ASSOCIATION.—(See American Railroad Association, Section II, Signal Division.)

RAILWAY STOREKEEPERS' ASSOCIATION.—(See American Railroad Association, Section VI, Purchases and Stores.)

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Next convention, June 9-16, Atlantic City, N. J.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, Waterbury Battery Co., 30 Church St., New York.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill.

ST. LOUIS RAILWAY CLUB.—E. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, West Nyack, Rockland County, New York.

SOCIETY OF RAILWAY FINANCIAL OFFICERS.—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. I. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3d Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, West-ern Ry. of Ala., Atlanta, Ga.

SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—C. N. Thulin, Duff Manufacturing Company, 935 Peoples Gas Bldg., Chicago.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. R. R., Cleveland, O. Next convention, September 14-17, Hotel Sherman, Chicago.

WESTERN ASSOCIATION OF SHORT LINE RAILROADS.—Clarence M. Oddie, Mills Bldg., San Francisco.

WESTERN RAILWAY CLUB.—J. M. Byrne, 916 W. 78th St., Chicago. Regular meetings, 3d Monday in month, except June, July and August.

Traffic News

An advance of 20 per cent has been made in sleeping car and parlor car rates on the railroads of Canada.

The Board of Trade of Newark, N. J., has established a traffic bureau, the manager of which is C. J. Fagg.

The Missouri Public Service Commission has ordered a 120-day suspension of the intra-state rate increase for sleeping and parlor car accommodations asked by the Pullman Company. The proposed increases are about 20 per cent.

The New York, Philadelphia & Norfolk has notified shippers of fruit and vegetables at Norfolk that it will take fifty cars of their produce north daily. Congestion and delay have been serious at Norfolk partly on account of the railroad strike and partly because of the discontinuance of the Old Dominion Line steamers.

The Commission on Car Service, in a circular addressed to the railroads, shows that during the first 15 days of April there was a slight gain all along the line in the relocation of cars to the home roads. For the 15-day period it tallied 8 per cent, or approximately 20,000 cars. Considering the retarded circulation due to the switchmen's strike, this improvement is considered gratifying. Some roads showed a gain of from 5 to 10 per cent in coal cars. Box cars do not as yet show the same tendency to get to the home line.

The New York State Barge Canal will be opened for business between Buffalo and Troy on May 10. The eastern end of the canal was opened on May 1, and sections as far west as Lyons on May 5. The Merchants' Association of New York City has issued a circular, for the information of merchants and manufacturers, setting forth the advantages of shipping freight westward by the canal. The canal boats will take freight to Buffalo at 50 cents per 100 lb. (first class), as compared with 61.5 cents by rail all the way; and at similar discounts for the other classes. Fifth class is 20.5 cents, compared with 25 cents by rail; by canal and lake to Cleveland the first class is 65 cents, as compared with 80 cents by rail; to Duluth by canal, lake and rail, 70 cents, and by rail all the way, 92.5 cents (first class). The Inland Marine Corporation, a consolidation of several companies, will operate this year on the canal 11 modern cargo steamers and 55 barges; and has under construction a large number of boats. The United States government (War Department) proposes to operate 51 steel barges, 20 concrete and three wooden barges, and 20 new self-propelling steel barges of 350 tons' capacity.

Increased Pullman Rates Allowed

The Interstate Commerce Commission, having given consideration to protests against tariffs filed by the Pullman Company to become effective May 1, 1920, proposing a 20 per cent increase in fares and charges for accommodations in Pullman cars, announced on April 30 that it had voted not to suspend the operation of the tariffs. The commission by this action does not approve any of the rates.

Freight Traffic Movement and Car Performance

The net ton-miles of revenue and non-revenue freight handled by the railroads in February amounted to 32,699,143,000, according to the monthly report compiled by the Railroad Administration. This is an increase of 27 per cent as compared with February, 1919. Train miles increased 19.7 per cent and car miles 17.3 per cent. The miles per car per day averaged 22.3 as compared with 20.2 and the net ton miles per car day averaged 453 as compared with 378, an increase of 19.8 per cent. The percentage of unserviceable freight cars was 6.5 as compared with 5.4.

Commission and Court News

Interstate Commerce Commission

The Interstate Commerce Commission has announced a hearing at Washington on May 26 before Examiner Gerry on the question of 25-trip family commutation ticket fares.

The commission has issued a reduced rate order authorizing carriers to file freight tariffs providing for changes in present rule 25, rule 26 and rule 28 rates, so as to restore their normal relationship with the respective basic rates, i. e., the existing second, third and fourth class rates, insofar as said changes result in reductions.

In an application filed in the office of the Interstate Commerce Commission on March 22, 1920, as supplemented April 24, the American Railway Express Company requests the commission to issue an order approving and authorizing the consolidation of the express transportation business and the property devoted to that business of the Adams, American, Wells Fargo, and Southern express companies, and the consolidation of the said companies so far as the business and property are concerned, into the American Railway Express Company, a Delaware corporation, as provided in the Transportation Act. The commission has ordered an investigation which will be assigned for hearing at places and dates hereafter to be specified.

The commission, in a decision in the cases of Armour Grain Company v. Director General, Illinois Central Railroad Company, et al, and Minneapolis Traffic Association et al, v. Director General, Ann Arbor Railroad Company, et al, has dismissed complaints that due to congestion of grain elevators consequent upon complainants' inability to obtain, during a period of car shortage, cars sufficient in number for outbound loading, demurrage accrued upon grain, in carloads, shipped into transit points on local billing and there held in cars for unloading into the elevators, and that, in such circumstances, the rules governing the assessment of demurrage were and are unreasonable and unduly prejudicial. The commission held that such rules were not shown to have been or to be unreasonable or unduly prejudicial.

Express Classification

The American Railway Express Company having filed a petition in the matter of proposed changes in official express classification, alleging that various changes in the classification are required to properly meet present conditions and requesting a hearing, the commission has announced that hearings will be held before Examiner F. H. Barclay as follows: May 17, New York, N. Y.; May 24, Chicago, Ill.; June 1, Spokane, Wash.; June 7, San Francisco, Cal.; June 14, Houston, Tex.; June 21, Atlanta, Ga.; June 28, Washington, D. C.

Restoration of Alleged Obsolete Rates and Charges

The Interstate Commerce Commission has authorized all carriers to re-establish rates and charges canceled subsequent to June 24 1918, solely upon the ground that such rates and charges are obsolete, where it is found that traffic is offered in such volume as to warrant said re-establishment, such rates being in most cases identified by the following notation or one of similar tenor: "These rates (subject to any general advance or reduction made in the meantime) to be restored by publication should any movement thereafter develop within one year of date of cancellation." Such reduced rates or charges must in no instance be higher or lower than the rates or charges in force on the date of such cancellation; and the changes being approved without formal hearing, such approval shall not affect any subsequent proceeding relative thereto. As to intrastate rates and charges, this order shall not be deemed to exempt said carriers from the requirements of any state law, rule or regulation.

State Commissions

Charles V. Halley, Jr., has been appointed Deputy Public Service Commissioner for the State of New York, First District, succeeding E. J. Glennon, office 49 Lafayette street, New York City. From 1907 to 1914 Mr. Halley was secretary to Commissioner Eustis.

Personnel of Commissions

F. G. Robins has been appointed director of the new Bureau of Service of the Interstate Commerce Commission, as noted in the article entitled "I. C. C. Creates Bureau of



F. G. Robins

Service," on another page of this issue. Mr. Robins was born at La Crosse, Wis., on February 15, 1876. He attended the public schools at Minneapolis, Minn., and the Shattuck School, Fairbault, Minn. He began railroad work in 1888 with the Minneapolis, St. Paul & Sault Ste. Marie, working during summer vacations as messenger and later as operator and rod man with a surveying party. After leaving school in 1896 he became connected with Kenneth, Hopkins & Co. on the Chicago Board of Trade, and in 1906 he entered

the service of the Chicago, Burlington & Quincy as special car agent. He was later traveling yardmaster, assistant trainmaster, trainmaster, assistant superintendent and superintendent of the same road, and in 1913 he became superintendent of the Elmira Corning & Waverly. In 1914 he went to the Erie and in 1916 he was appointed general superintendent. In 1917 he entered the United States army as major, and he was promoted to lieutenant-colonel as assistant general manager of the Transportation Corps. In 1919 he returned to the Erie as general superintendent at Chicago, and from December, 1919, to the date of his appointment with the commission he was manager of Imbrie & Co.

Court News

Gasoline Billed as Unrefined Naphtha

The Gulf Refining Company, tried in the United States District Court at Tulsa, Okla., was convicted by a jury on April 23 of violation of the Interstate Commerce law, the offense being the transportation of casinghead gasoline from Kiefer, Okla., to Port Arthur, Tex., billed as unrefined naphtha. Due to its extremely volatile character casinghead gasoline must be handled with great care involving high freight charges, while unrefined naphtha is shipped at approximately 50 per cent of the gasoline rate, the difference in freight charges being from \$70 to \$100 for each car. The Gulf Refining Company complied with the shipping requirements in force, insofar as placing placards on the cars was concerned, but used the term unrefined naphtha for the purpose of taking advantage of a commodity rate on this material. Testimony showed that the company had been in the habit of billing in this manner for the past three years. Judge Williams deferred further action in the case to a later term of the court with the notation that no judgment would be pronounced upon the finding of the jury until that time.

Stepping Off Moving Train

In view of section 55 of the New Jersey General Railroad Law, declaring that "if any person shall be injured . . . by jumping on or off a car while in motion, such person shall be deemed to have contributed to the injury sustained, and shall not recover therefor," the New Jersey Supreme

Court holds that the boarding or alighting from a moving railroad train is presumably and generally a negligent act *per se*, and in order to rebut this presumption it must appear that the passenger was, by the act of the defendant, put to an election between alternative dangers, or that some situation was created which interfered with his free agency, and was calculated to create a confidence that the attempt could be made in safety. A passenger who, as the train slackened speed and the trainman called out "Park Place, last stop, Newark," arose, walked to the front of the car, following a passenger ahead of her, and, finding the door open, stepped off the moving train in the belief that it had stopped, could not recover for injuries sustained, since no act or direction of those in charge of the train interfered with her free agency or in any manner diverted her attention.—*Zelman vs. Pennsylvania* (N. J.) 107 Atl. 442.

Railroad Not Liable for State Tax on Receipts From Distinct Ferry System

The California Supreme Court holds that article 13, § 14, subdivision *a* of the State Constitution, providing that all railroad companies shall annually pay a tax on their franchises, roadways, rolling stock, "and other property, or any part thereof, used exclusively in the operation of their business in the state," refers by the phrases "all railroad companies" and "other property or any part thereof," etc., only to the kinds of business which are declared to be so taxable in the opening paragraph of section 14, and includes only property used exclusively in the operation of such business. The court holds that the gross receipts of a railroad company from the operation of a ferry, entirely separate and distinct from its railroad business and unconnected therewith, were not taxable by the state board of equalization (at 5¼ per cent) under section 14. The ferry in question was the Southern Pacific's system of ferryboats between San Francisco and Oakland, known as the "Creek Route," which do not connect with any of the railroad's lines, nor with any other line.—*Southern Pacific v. Richardson* (Cal.) 184 Pac. 3.

Railroad Not Liable for Remote Damages

The North Carolina Supreme Court holds that a woman who purchased a ticket and boarded a train which would not stop at her destination, so that she was compelled to get off at an intermediate station, where she might have changed trains and been carried to destination, assuming that she had a cause of action for the railroad's failure to transport her, could not recover for injuries she received by reason of going to her destination on a street car from the intermediate point. Such damages are too remote. The court said: "The plaintiff reached Greensboro (the intermediate point) about 12 o'clock and left the train at the station, where there was a waiting room. A local train of the defendant left this point at 2 o'clock, and if she had taken it she would have reached Terra Cotta (her destination) about 2.11 o'clock; but instead of waiting, and without making inquiry of anyone, she took a street car for Pomona, one-fourth mile from Terra Cotta, which she reached about 2.30 o'clock, and it is for injuries on the street car and while walking from Pomona that she seeks a recovery. They are too remote, and could not have been foreseen or anticipated."—*Blaylock v. Southern* (N. Car.) 100 S. E. 599.

Employers' Liability Act Decisions

A trackman of an interstate railroad, injured returning from his work by attempting to board a moving freight train, pursuant to orders of the foreman, is engaged in interstate commerce within the act.—*Schantz v. Northern Pacific* (N. Dak.) 173 N. W. 556.

The New York Appellate Division holds that a man employed to pump water into a tank for supplying engines for interstate trains, who was injured while oiling the pump machinery after having started the pump, was within the federal act.—*Kelly v. Erie*, 188 App. Div. 863, 177 N. Y. Supp. 278.

The Illinois Supreme Court holds that a flagman employed by the defendant railroad at a street crossing where all its tracks and those of another company, which reimbursed the defendant

for one-third of the cost of maintaining the flagman, were used indiscriminately for interstate and intrastate commerce, and killed by an interstate train of the other company in the course of his employment, was within the federal act.—*Chicago & Alton v. Industrial Commission* (Ill.), 124 N. E. 344.

A railroad engaged in interstate commerce maintains at one of its division points a roundhouse and turntable for engines used in such commerce. The Oklahoma Supreme Court holds that the roundhouse, tracks and turntable are instrumentalities used in interstate commerce, and that an employee whose duties were to wash the engine boilers, was, while in discharge of his duties and in going to and from his work when ordered by the roundhouse foreman, engaged in interstate commerce within the act.—*Lusk v. Bandy* (Okla.), 184 Pac. 144.

A non-suit was held properly entered by the Pennsylvania Supreme Court in an action under the federal employers' Liability Act for the death of an employee struck by a train when it was shown that the tunnel in which he was working when killed was not used at all by the railroad in interstate commerce.—*Tilli v. Philadelphia & Reading* (Pa.) 107 Atl. 330.

The New Jersey Court of Errors and Appeals holds that the state court has no jurisdiction of a workmen's compensation case arising from the death of a railroad's employee killed by its train containing cars engaged in interstate commerce, the employee at the time having been himself so engaged, the federal statute applying and being exclusive. The holding in the case of *Winfield v. Erie*, 88 N. J. Law 619, 96 Atl. 394, that the state act would apply unless the employer pleaded and proved that the accident in question was due to the negligence of himself or his servants was overruled by the Supreme Court of the United States in *Erie v. Winfield*, 244 U. S. 170, which decision is controlling.—*Talmadge v. New York, Susquehanna & Western* (N. J.) 107 Atl. 411.

United States Supreme Court

Reading Case Combination Dissolved

The decision of the Supreme Court of the United States in the government's case against the Reading and other companies, noticed last week, page 1298, reverses in part the judgment of the Circuit Court of Appeals (226 Fed. 229). For violation of the first and second sections of the Anti-trust Act. The relations between the several companies must be so dissolved as to give to each of them a position in all respects independent and free from stock or other control of either of the other corporations. In requiring the Central of New Jersey to divest itself of the Wilkes-Barre Coal Company, the Court cites five decisions: *United States v. Lehigh Valley* 220 U. S., 257, 272, 273; *United States v. D., L. & W.*, 238 U. S., 516, 529, and *Chicago, M. & St. P. v. Minneapolis Civic & Commerce Association*, 247 U. S., 490, 501.

Mr. Chief Justice White, Mr. Justice Holmes and Mr. Justice Van Devanter dissent, basing their opinions on the decision of the Court below (226 Fed. 229), that opinion handed down in 1915, was by three circuit judges and covers 40 printed pages. The court found that while there had been, since their reorganization in 1896, a common ownership of the two companies and to some extent common directorates, their operating departments and officers had been entirely separate, and the business between them had been conducted at arms' length. The railroad company charged the coal company customary rates for the carriage of its coal, without discrimination, and purchased and paid for all coal for its own use. It was held that the railroad company did not mine or produce the coal transported for the coal company, nor did it own or have any interest, direct or indirect, in such coal, which rendered its transportation thereof unlawful under the Commodities Clause of the Interstate Commerce Act.

It was also there held that a combination of a coal-mining company and a railroad company, by whose line the coal of the mining company can be transported from the mines, through the medium of a holding company which owns the stock of both other companies, is not necessarily unlawful as in violation of the Sherman Anti-trust Act unless unlawful methods or practices are resorted to which tend to create a monopoly or restrain competition. *U. S. v. Reading Co.*, 226 Fed. 229 (1915).

Foreign Railway News

The Times Trade Supplement says that railway and tramway plant to the value of £269,350 was imported by New Zealand in the year 1919, as against £52,214 in 1918.

An article in the North Eastern Railway Magazine (London), states that the German standard freight cars have capacities of 12½ tons, 15 tons and 20 tons, there being only a few 10-ton cars.

Engineering (London) reports that the government of the Serbs, Croats and Slovenes contemplates doubling the railway line from the Italian frontier to the Bulgarian border as an undertaking of imperative necessity.

The Tasmanian government has ordered ten passenger and freight locomotives from a South Australian firm. The rate of exchange prevented the placing of the order in the United States, and the time of delivery quoted by British firms was unsatisfactory.

The Ministry of Transport has recommended to the British government that the State buy up the smaller railways in the United Kingdom and lease them to the large companies. It is declared that large economies could be effected. The number of British railway companies is 135 and of these over 100 are classed as small.

The British Ministry of Transport reports railway receipts for England during the month of January as £16,115,554; and total expenditure, £16,447,693. Passenger traffic increased from £5,719,383 in January, 1919, to £6,772,858 in January, 1920, and freight receipts from £5,973,876 to £9,167,812; but government traffic fell from an estimate of £2,700,267 to £993,458.

Equipment of Paulista Railway

Since the announcement of the Paulista Railway electrification in Brazil was made in the *Railway Age* of April 23, it has been learned that the Westinghouse Electric International Company has obtained contracts for a portion of the equipment; two locomotives for passenger service and two for freight; gage, 5 ft. 3 in. The passenger locomotives have a one-hour rating of 2,000 h.p. and weigh 121 tons each. They will be operated from a 3,000 volt, d.c., overhead trolley system, and will be complete with regenerative control. They are designed for a maximum speed of 65 miles an hour. The freight locomotives have a one-hour rating of 1,500 h.p. and will weigh 87 tons each; maximum speed, 40 miles an hour.

May-Day Strike in France.

There was a general strike of railroad men, coal miners and dock workers in France on May 1, as had been threatened, but by Tuesday, the 4th, the movement, so far as train operations were concerned, was declared a failure. Not over 30 per cent of the trainmen left their work, and within two days considerable numbers came back. On Tuesday the railroad employees were notified that they must return to duty by Thursday or consider themselves irrevocably discharged. At the ports, dock laborers and seamen struck in considerable numbers and some of the ports were almost tied up, but others were but little affected. A Paris report of Tuesday was to the effect that no through passenger trains had been taken off and that suburban service was tolerable. There had, up to that day, been no serious shortage of food and the stocks of coal were said to be sufficient for two weeks, or longer.

Electrification on the Upper Rhine Railways of France

LONDON.

An article in the Times' Engineering Supplement states that the electrification of the Haut-Phin railways around Belfort, France, has been completed. The length of road is approximately 44 miles. The gage is one meter and the gradients are fairly good. On the other hand there are numerous

curves of small radius, many of 100 ft. and some even of 130 ft. The single phase system at 6,000 volts, and 25 cycles, has been adopted. The power is obtained from the steam generating station of the Societe des Houilleres de Ronchamp. This station is situated about 12½ miles from Belfort, and has one turbo-generator of 5,000 hp. and three of 2,500 hp. each. The motor cars of the trains have two motor trucks, each carrying two 4-pole motors of 35 hp. each. The multiple unit system of control is used.

Plans for Nationalization of Greek Railways

LONDON.

Mr. Repulis, vice-president of the Greek cabinet, recently presented a bill to the Parliament regarding the nationalization of the railways, in order to complete the bill already passed in 1917. All railway lines in Greece become the property of the government according to the new bill, or the government operates a line for the account of a company. In introducing the bill, Mr. Repulis said that as soon as the government takes possession of the railways a great improvement will take place, and the first thing to be done will be to complete and improve the permanent way and rolling stock, which could not be done by the existing companies, as they had not sufficient funds with which to do it. Then will come an improvement as regards the salaries of the railway staff and the modification of certain tariffs. The new bill contains a provision that the staff will participate in the net profits of the railways, under certain conditions, while provision is also made for pensions for retiring employees. The length of the railway lines which will thus become state-owned is approximately 2,000 miles.

England's Railway Exports

LONDON.

The British Board of Trade reports the value of exports of railway material for the first two months of the present year, as against the figures for January and February, 1919, as follows (£1 = \$4.86):

	Jan. and Feb., 1919	Jan. and Feb., 1920
Locomotives	\$584,673	\$2,322,686
Rails	314,709	958,300
Passenger cars	153,255	1,043,452
Freight cars	409,690	4,136,900
Wheels and axles	187,232	1,405,702
Tires and axles	599,048	997,520
Chairs and metal settees	51,001	284,536
Miscellaneous track material	834,749	5,179,273

The tonnage of rails was 11,792 for January and February 1920 as against 3,620 for the same period of the year 1919, and of chairs and metal sleepers 2,646 for the first two months of 1920, as against 600 for the corresponding period of the year 1919. During the month of February, locomotives to the value of \$248,988 went to India and \$153,090 to the Straits Settlements. Rails to the value of \$74,805 went to India.

Great Northern Prepares to Handle

Continental Traffic

LONDON.

Although sanction to construct the Channel Tunnel has not yet been given by the Parliament of Great Britain, the Great Northern Railway has set about the task of moving back its station platforms to provide for the handling of Continental trains. The clearance limitations in England generally are such that when the Channel Tunnel is built the Continental trains will be limited to a very few roads unless such changes as the Great Northern had in hand are made. While the track gage of both the English and French railways is the same, the English roads have smaller clearance limitations both in width and height than do the French roads.

In England all the stations have raised platforms enabling the passengers to step directly into the trains, whereas in France it is necessary, except in some of the large stations, to mount several steps before entering the cars.

The English roads have made special efforts to eliminate level crossings and have more overhead bridges in proportion to length of line than any other country in the world.

It is not only necessary for the English roads to increase

their loading gage for Continental traffic, but also for the purpose of using larger locomotives. The present clearance limitations are now so small that it will require a large amount of rebuilding of bridges or the lowering of track to meet the required conditions, and this would be a very expensive undertaking.

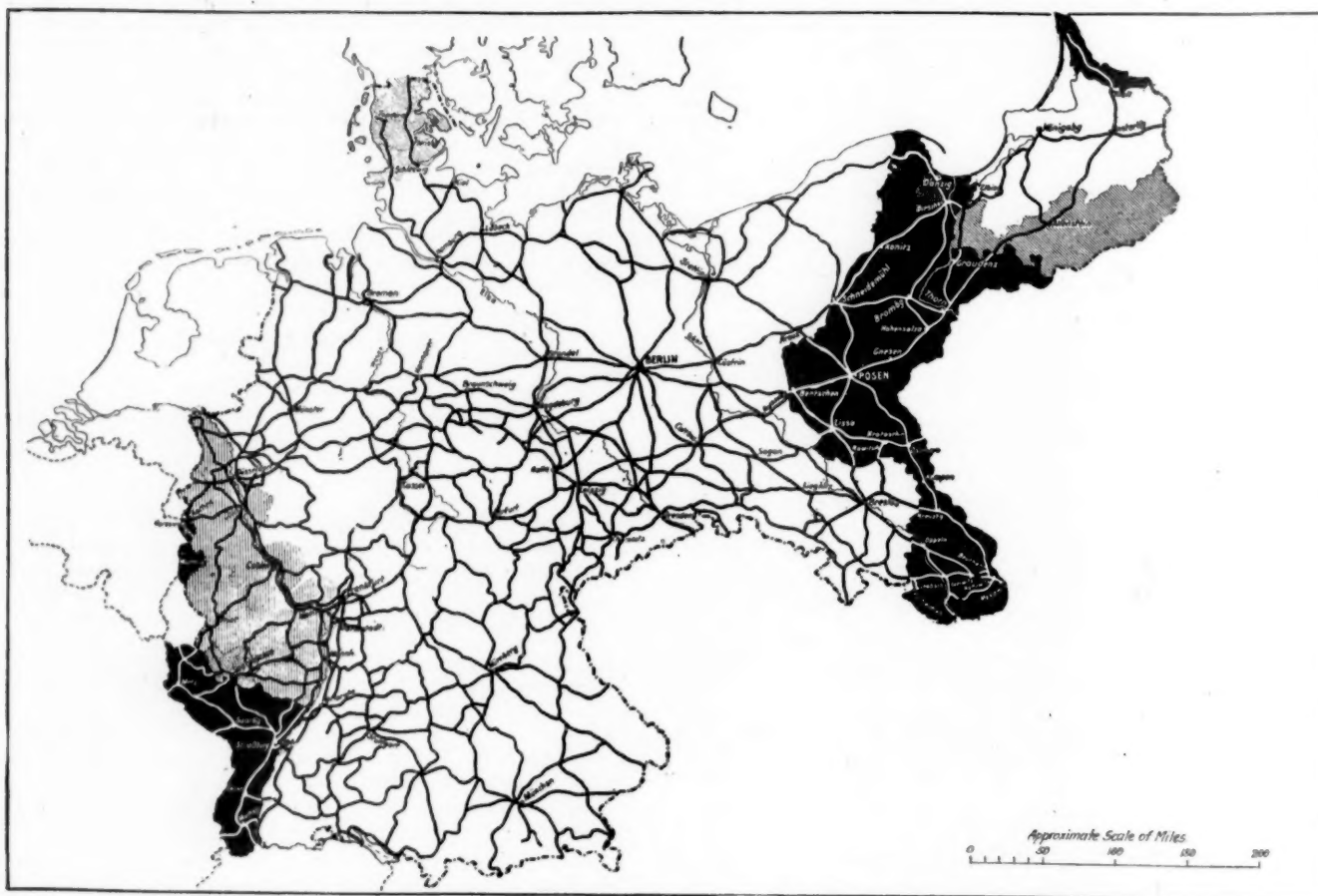
Railway Mileage Lost to Germany

From a map which was published last year by the German government it appears that the railroads lost by Germany, under the terms of the Peace Treaty, aggregated about one-sixth of the total mileage of the empire. In the black portion of the map are shown railroads immediately surrendered on the conclusion of peace, while the shaded portion shows those in the Plebiscite territory. Taken together there is a total loss of 6,550 miles, or 16.8 per cent of 38,800, the total mileage. In the territory immediately surrendered at the conclusion of peace, there is a total

data gathered will shortly be published. A few figures have already been given out, and for the first time there is now a basis, other than rule-of-thumb estimates, for comparing the service for different periods and as between different roads. The statement issued gives average freight train loads for four weeks ending February 1, 1920, as follows:

	Average load	Average length of haul
Great Central	174.15 tons	35.94 miles
Great Northern	156.36 tons	45.89 miles
Midland Railway	145.11 tons	54.11 miles
Taff Vale	144.49 tons	12.89 miles
Great Western	143.43 tons	48.76 miles
London & North Western	140.35 tons	43.55 miles
Lancashire & Yorkshire	139.01 tons	25.36 miles
North Eastern	154.81 tons	32.25 miles
North Staffordshire	90.70 tons	16.39 miles

The average freight carload for all railways of Great Britain of standard gage is approximately 5.42 tons, or a little over 50 per cent of the actual average capacity of the wagons (cars) in use. The longest average passenger journey is reported by the



Railroads of Germany—Black and Shaded Areas Show Lines Ceded by the Peace Treaty

railway mileage of 1,505 miles, and in the Plebiscite territory 5,045 miles. This is distributed among the different countries, as follows:

	Immediate loss	Plebiscite territory
Belgium	90 miles	
France	270 miles	1,190 miles
Denmark	315 miles	
Poland	830 miles	
Province of Memel		85 miles
Province of Danzig		100 miles
Poland and Czecho-Slovakia		3,670 miles
Total	1,505 miles	5,045 miles

There are included in the lost territory 12 principal repair shops and three small repair shops, which leaves the railways of Germany with 67 main repair shops and 10 smaller shops.

Some English Operating Statistics

The British Ministry of Transport, now in charge of the operation of all the railroads of Great Britain, has adopted a scheme for the compilation and publication of operating statistics like those with which we are familiar in America; and, freed from the stress of wartime burdens, announces that some of the

London & Southwestern, 1126 miles, the average for all railways being 10 miles. The gross freight train receipts per ton-mile, after deduction of costs of collection and delivery, work out at 1.155 pence (2.31 cents).

Progress in Electrification of Swiss Railways

The electrification of the important Swiss Federal Railway running south from Lucerne to the Italian border at Chiasso, thence into Italy to Milan (the Gotthard line), is progressing rapidly. It is now announced that the stretch of 15.5 miles through the Gotthard tunnel from Göschenen to Airolo will be operated electrically beginning in May next, followed by the stretch north of the tunnel from Erstfeld to Göschenen, 28.6 miles, in June; the line south of the tunnel from Airolo to Biasca, 45.3 miles, in September; and probably at a later date this year the stretch of 11.8 miles from Biasca to Bellinzona will be finished. The first trials with electrical equipment have been carried out through the Gotthard tunnel, and are stated to have proved very successful.

As rapidly as conditions will permit, the Federal authorities now plan to electrify practically all of the Government-

owned main line roads in the Confédération. It is planned to spread the work over a period of about 20 years. Within the next 10 years it is proposed to transform the line from Zurich, via Olten, Bern, Fribourg, and Lausanne, to Geneva. The part from Zurich to Bern, according to the present plan, will be started in 1922 and completed in 1924, and, in the following two years, it is thought that the section from Bern to Lausanne can be completed.

The electric locomotives for the Erstfeld-Bellinzona line are being built by the Swiss firm of Brown Boveri & Co. (Ltd.), at Baden. The motor is constructed for the use of single-phase alternating current of 15,000 volts, with a frequency of 16 2/3, and will develop 540 horsepower. Each locomotive will carry four such motors, enabling it to develop a maximum speed of 46.5 miles per hour. The width of the gage is 4 ft. 8 1/2 in.; the diameter of the drive wheels, 53 in., and the diameter of the running wheels 37 1/2 in. The total weight of the electric equipment and parts of each locomotive is 94.6 metric tons, and that of the purely mechanical parts, 58 metric tons. The latter equipment is being made by the Swiss Locomotive & Engine Works, at Waterthur.

Increased Cost of Operation on Spanish Railways

The Revue Generale des Chemins de Fer published in a recent issue an abstract from the Los Transportes Ferreos which discussed briefly the 1918 financial condition of the three principal railways of Spain as compared with 1913.

On the Compagnie du Nord during this five year period, the receipts increased only 31.34 per cent, whereas the expenses increased 116.52 per cent. This large increase in expenses is due principally to the increased cost of materials and especially coal. The cost of locomotive coal increased 336.77 per cent; the cost of material for roadway and shops increased 64 per cent, and the cost of various other repairs increased 319 per cent. The average purchase price of coal increased 194 per cent, but at the same time the fuel consumption per locomotive mile increased 55 per cent. The increase in the wages of the personnel was 35.11 per cent.

On the Madrid, Saragosa & Alicante there was an increase in the consumption of coal in 1918, of 35.51 per cent over that of 1913, and this increase does not correspond to the increase in traffic; it was due to the poor quality of the fuel. In other indispensable railway material the increased cost varied anywhere between 60 and 1,000 per cent. Wages of personnel were one of the principal causes for the increase of expenses. This increased 33 per cent in 1918 over that of 1913 and under recent grants to the workmen the increase for 1919 will be 60 per cent. The total increases in the receipts of this road in 1918, as compared with 1913 was only 39.76 per cent, as against an increase in operating expenses of 117.83 per cent.

The situation on the Madrid, Caceres & Portugal et Ouest de l'Espagne is similar to that of the other companies. The amount of coal consumed increased 44.67 per cent and the price per ton increased 177.74 per cent. The total cost of the fuel increased 299 per cent. The receipts of this company increased only 84.65 per cent as against an increase in operating expenses of 84.47 per cent.

It will be seen that all of the Spanish railway companies have suffered greatly by increased prices on account of the war and the financial position of the roads is such as to justify the most serious apprehensions.

Locomotive Construction in Belgium

Although all the locomotive works in Belgium except two have resumed operation, says Vice Consul Carl C. Lumry in Commerce Reports production of new engines is practically nil, according to information furnished by the industrial inspection service of the Ministry of Economic Affairs. All Belgian builders, it is stated, are occupied at present in overhauling locomotives of the state railway, including the light railway (steam interurban) lines. A number of locomotives which were ordered in 1914, material for which was hidden and escaped the attention of the Germans, are now being completed, as are also a number of locomotives intended for the light railways and a small number for the use of Belgian industry.

Present conditions of production are considered very unfavorable on account of the cost and scarcity of all raw materials, the

reduction in the hours of work, the demands of the workers, and the exodus of many of the better workmen to France and England where wages are said to be even higher. There are at present employed in this industry 4,542 men, which is only 75 per cent of the personnel employed in 1913. On account of the greatly reduced hours of work, it is estimated that even with the necessary materials available, it would be possible to build only about 50 per cent of the 1913 output with the personnel now employed.

The cost of materials has, of course, increased tremendously.

CAPACITY OF BELGIAN SHOPS INSUFFICIENT TO MEET GOVERNMENT DEMAND

Before the war there were 20 shops building locomotives; 3 of these were located in the Province of Brabant, 1 in eastern Flanders, 12 in the Province of Hainaut, and 4 in the Province of Liege. Of this number, 2 built locomotives exclusively, and the other 18 manufactured machinery and equipment as well as locomotives; 17 manufactured locomotives of all types, while 3 specialized on locomotives for industrial purposes. At present, several Belgian builders are working on oil-burning locomotives.

The Belgian Government has recently placed an order with Belgian builders for 100 locomotives; this is in addition to the order placed in the United States for 150 locomotives of American type and construction. It is thought that it will be necessary to place another order with foreign builders for locomotives and railway equipment in the near future, as the Belgian works are not in position to take care of the government's needs.

It should be borne in mind that the "Ministere des Chemins de Fer, Marine, Postes et Telegraphes" has under consideration a project for the electrification of all the Belgian railways. Work on the Antwerp-Brussels line will undoubtedly be started in the near future. When electrified, it is planned to have 30-minute service between Brussels and Antwerp, thus uniting the political and financial center of the country with its principal port.

Railway Notes from China

PEKING, March 27, 1920.

During the past month work upon the unification program has been put under way by the holding of two important conferences, one of the engineering officers of the several lines and the other of the mechanical officers. The conferences were considered as being merely preliminary, serving the purpose of extending acquaintance among the officers of the same department and putting the line officers in closer touch with the ministry officials and their advisers. The engineering conference gave its principal attention to the subject of a standard clearance, but also took up tentatively the subject of a standard rail section. The mechanical officer's conference devoted most of its time to the subject of standard 40-ton freight cars. No decision has been taken upon any of these subjects, a further conference being scheduled in each department for the month of April.

* * *

To assist F. H. Clarke, the technical adviser, William M. Peitch, formerly of the Pullman Company and the Pressed Steel Car Company, has been engaged by the commission on railway technics, of the Ministry of Communications, as chief draftsman.

* * *

Preliminary figures covering the operations of the Chinese government railways for the year 1919 now given out by the Ministry of Communications, indicate that earlier estimates were unduly conservative. Operating revenues are stated as approximating \$82,000,000, or a gain of \$4,500,000 over the abnormal year of 1918. Operating expenses, however, also show a large increase so that the operating ratio will stand at nearly 46 instead of 43, as it was in 1918. Operating expenses are \$37,200,000, compared with \$34,300,000 during the year before. More favorable rates of exchange, however, will reduce interest payments by over \$2,000,000 so that the net income figures for the year will be not far short of \$37,000,000. Out of the net revenues of the several lines probably \$3,500,000 will be used to redeem mortgage bonds. But due to the favorable rate of exchange compared with the rate obtaining when the bonds were first floated, the normal amount of bonds outstanding on the books will be reduced by between seven and eight million. Practically all the bonds outstanding upon Chinese railways are expressed in terms of pounds, sterling, or francs. When the books of the lines were made up in terms of Chinese dollars these pounds sterling were rated in the balance sheet at about \$11.00 to the pound and francs were converted at the rate of about two and a half to the dollar. During the year

1919 the repayments have cost on the average only about \$4.50 to the pound while francs could be bought for nine or more to the dollar. Counting these considerable gains from exchange, the combined balance sheet for the government railways will show a gain over last year of approximately \$39,000,000 less remittances to government.

* * *

The last issue of these notes called attention to the proposed construction of a line from Shihchiachuang to Tehchow. Shihchiachuang is the junction of the Peking Hankow line with the Cheng Tai—the latter being the line which serves the rich ore bearing province of Shansi. Tehchow is a large city on the Tientsin Pukow line about 30 miles north of Tsinan—the western terminus of the Shantung railway. The Tientsin mercantile interests had petitioned that this line be built to Tsangchow, only 60 miles south of Tientsin. The change of terminus has given rise to no little discussion and telegraphing from the provinces in opposition, with the result that probably nothing will be done finally. However, the Ministry of Communications has formed a special bureau for floating a domestic loan to the amount of \$30,000,000, of which \$10,000,000 will be set aside for the building of this line. These circumstances have given rise to the charge that the terminus was changed from Tsangchow to Tehchow on the promise that Japanese capital will see to it that the domestic loan does not fail (almost a certainty otherwise) and that Japanese interests will not press for the construction of the Tsinan-Shunteh line. The plausible character of this surmise is apparent when one looks at the map. Via the Tsangchow route Shihchiachuang is only 160 miles from Tientsin compared with 430 from Tsingtau, while by the Tehchow route Tientsin is 230 miles compared with 380 to Tsingtau. While Tientsin still has the advantage, it is not such an advantage that preferential rates on the Shantung line and favorable treatment at the port of Tsingtau could not be overcome. Especially is this true, when the demand for Shansi ores in Japan is considered.

However, British interests with holdings in both the Tientsin and the Shansi regions need to have the short route to Tientsin. These interests are said to be bringing to light an old contract which provides that if Tientsin is ever connected by rail with a point not far north of Shihchiachuang, known as Paotingfu, the British administration of the Peking Mukden line will be allowed to build it. They are said to hold that Shihchiachuang is in the natural Tientsin area, and that the line from Paotingfu is the natural line to build, to make the direct connection; for by this connection the haul to Tientsin is identical in length via Paotingfu and via Tsangchow and requires only 80 miles of new construction compared with 100 miles via either of the other routes. Yet, a strange favoritism toward the Tehchow route is reported from the British Legation, which can be explained to some minds only on the theory that British and Japanese interests in China are making a *rapprochement*.

* * *

The Chinese Government has taken over full responsibility for the Chinese Eastern Railway. It has appointed a board of directors, of which former Russian chief, Gen. Horvath, is one. The military governor of Kirin province has taken over the policing of the line. Chinese stationmasters are on their way to take the place of Russians in the more important stations, the Russians doubtless remaining as assistants if they care to do so. The threat of a strike some days ago was promptly met by an offer to let the men walk out if they chose, promising that every place would be filled by a Chinese if any men left their posts. The Japanese attitude upon this move is revealed best by this one question asked by the editor of "Hochi": "Can Japan, which is directly interested in the railway, overlook this state of affairs?" But Japan is put in a very difficult position for resistance. The readiness with which the Russians delivered over the line to the Chinese indicates that they felt this to be the only means of saving anything out of it. China has promised to redeem it according to the terms of the original agreement, and Russia's one chance of getting her money back is to support the Chinese against Japanese aggression upon it. Then, too, the great cause of the inter-Allied military operations in Russia and Siberia had as its first cause the French desire to protect the French investment in this security. Hence, another source of support may be looked for in that quarter. But the growing sense of national strength in China and the knowledge of the internal unrest in Japan, is leading to a much more self-respecting attitude on the part of China than has characterized her attitude toward Japan in the recent past.

Equipment and Supplies

Locomotives

THE LEHIGH VALLEY is inquiring for 5 Mikado type locomotives.

THE OKLAHOMA SOUTHWESTERN, which is now building a new line from Bristow, Okla., to Okmulgee, is in the market for locomotives.

THE FORBES-PERKINS COMPANY, RODNEY D. CHIPP, New York manager, 120 Liberty street, is in the market for 15 Mikado type locomotives, 24 Consolidated type locomotives, and 24 Pacific type locomotives, for export.

THE KOPPERS COMPANY, Pittsburgh, Pa., has ordered one 6-wheel switching locomotive from the American Locomotive Company. This locomotive will have 19 by 26 in. cylinders and a total weight in working order of 121,000 lb.

THE UNITED FRUIT COMPANY has ordered 3 Mogul locomotives from the H. K. Porter Company. These locomotives will have 12 by 16 in. cylinders and 33 in. gage; they are to be used on the United Fruit Company's railroads in Panama.

THE CHINO COPPER COMPANY, 25 Broad street, New York, has ordered three 8-wheel tank locomotives from the American Locomotive Company. These will have 21 by 26 in. cylinders and a total weight in working order of 157,000 lb., and will be equipped with superheaters.

THE NORTHERN PACIFIC, reported in the *Railway Age* of April 16 as being in the market for 71 locomotives, has ordered these from the American Locomotive Company. This order consists of 25 Mikado type locomotives, with 28 by 30 in. cylinders and a total weight in working order of 335,000 lb.; 20 Pacific type locomotives, with 26 by 28 in. cylinders and a total weight in working order of 296,000 lb.; 20 eight-wheel switching locomotives, with 25 by 28 in. cylinders and a total weight in working order of 214,000 lb.; and 6 Mallet type locomotives, having 26 in. and 40 in. by 30 in. cylinders and a total weight in working order of 476,000 lb. All these locomotives will be equipped with superheaters.

Freight Cars

THE HAVANA CENTRAL is in the market for 50 narrow gage box cars and 50 narrow gage flat cars.

THE PHELPS DODGE CORPORATION, New York, is inquiring for 2 narrow gage tank cars, of 2,000 gal. capacity.

THE UTAH IDAHO CENTRAL has ordered 100, all-steel, 100 per cent drop bottom gondola cars from the Ralston Steel Car Company.

THE WAR DEPARTMENT has sold to the U. S. International Corporation, New York, 7,025 box and gondola cars at prices ranging from \$850 to \$1,350 each.

THE OLIVER IRON MINING COMPANY, Duluth, Minn., has ordered from the Magor Car Company 65 air dump cars of 30 cu. yd. capacity for the Missabe Range.

THE INTERNATIONAL HARVESTER COMPANY, Chicago, reported in the *Railway Age* of April 30 as inquiring for 500 hopper cars, has ordered this equipment from the Standard Steel Car Company.

THE BALTIMORE & OHIO, reported in the *Railway Age* of April 2 as asking prices on car bodies, has ordered 1,200 hopper car bodies from the Pressed Steel Car Company, and 1,000 box car bodies from the Mt. Vernon Car Manufacturing Company.

THE FORBES-PERKINS COMPANY, RODNEY D. CHIPP, New York manager, 120 Liberty street, is in the market for 20 ballast cars, 40 tons' capacity; 20 ballast cars, 30 tons' capacity; 200 box cars,

28 tons' capacity; 150 flat cars; 50 coal cars; 50 stock cars; 250 box cars, 44,000 lb. capacity; 100 flat cars, 44,000 lb. capacity, and 555 miscellaneous freight cars for export.

Passenger Cars

THE LEHIGH VALLEY is inquiring for two dining cars.

THE HAVANA CENTRAL is inquiring for 18 baggage cars.

THE BALTIMORE & OHIO is inquiring for a number of cars for passenger train equipment.

THE MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE has ordered 6 sleeping cars and 1 business car from the American Car & Foundry Company.

THE FORBES-PERKINS COMPANY, RODNEY D. CHIPP, New York manager, 120 Liberty street, is in the market for 8 baggage cars, 4 mail, 12 first-class passenger, 12 second-class passenger, 4 sleeping cars, 4 baggage and mail cars, and 48 miscellaneous passenger cars, for export.

Iron and Steel

THE BOSTON & MAINE has ordered 200 tons of fabricated bridge steel from the American Bridge Company.

THE NORFOLK & WESTERN has ordered 600 tons of fabricated bridge steel from the American Bridge Company.

THE BALTIMORE & OHIO has ordered 300 tons of fabricated bridge steel from the American Bridge Company.

THE NETHERLANDS GOVERNMENT is in the market for 14,000 tons of 50 and 70 lb. rails for use on the State Railways in Java.

THE UNITED FRUIT COMPANY is in the market for 2,550 tons of 50 lb. rails, also for 1,000 tons of 30 lb. rails, for use on its railroads in Honduras.

THE SOUTHERN RAILWAY has let a contract for the fabrication and erection of a double track steel bridge crossing on the Ohio river at Cincinnati to the American Bridge Company.

Miscellaneous

THE HANSHIN RAILWAY (Japan) has ordered 80 electric trucks from the Baldwin Locomotive Works.

THE IMPERIAL JAPANESE GOVERNMENT RAILWAYS have ordered 4,550 steel tires from the Consolidated Steel Company.

THE GREAT NORTHERN has ordered built-up draft arms and Bradford draft gear for repairs to 1,500 cars from the Bradford Draft Gear Company, New York.

THE FORBES-PERKINS COMPANY, RODNEY D. CHIPP, New York manager, 120 Liberty street, is in the market for the following railroad equipment for export: 230 tons of steel; 13 tons sheet iron; 50,000 bolts; 1,000,000 spikes; 50,000 casks of cement weighing 330 lb. each; 6 track automobiles; 20,000 pieces of steel rail, 65 lb. to the yard; 22,000 pairs of fish plates; 132,000 bolts and nuts; 60 complete sets of switches; 10 sets of steel underframes, with wheels and axles for freight cars; and 1,016 locomotive tires, with a diameter of 23½ in. and weighing 400 lb. each.

Signaling

THE CENTRAL RAILROAD OF NEW JERSEY has awarded a contract to the Union Switch & Signal Company, Swissvale, Pa., for an extensive electro-pneumatic interlocking plant to include the Delaware river bridge, between Phillipsburg, N. J., and Easton, Pa. All switch and signal functions will be operated from one machine located at Phillipsburg. A 59-lever machine will be installed with 45 working levers for the operation of 55 signals, 29 switches, 16 derails, 2 double slip switches with movable point frogs and a single slip switch with movable point frog. Alternating current will be used for track circuits and signal lights.

Supply Trade News

The Grip Nut Company, Chicago, has opened a new plant at 5917 Western avenue, Chicago.

The Ingersoll-Rand Company, New York, reports the sale to the Lehigh Valley of twenty-five "Little David" pneumatic rail-bonding outfits.

The Railway Audit & Inspection Company, Incorporated, Philadelphia, Pa., on April 1, opened an office in the Perry Payne building, Cleveland, Ohio.

The Transportation Engineering Corporation has moved its Chicago office from the Manhattan building to the Transportation building. K. R. Hare, is district manager.

B. H. Forsyth, salesman for the Grip Nut Company, Chicago, has been appointed manager of the Pittsburgh office of the Chisholm-Moore Manufacturing Co., Cleveland, Ohio.

William B. Ross, district manager in charge of sales for Mudge & Co., Chicago, with headquarters at New York City, has been appointed manager of sales of Edwin S. Woods & Co., Chicago.

The General Electric Company, Syracuse, N. Y., has bought the factory of the Bartlett-Hayward Company, on Columbia avenue, Baltimore, Md., and will use this plant to manufacture electrical devices.

The firm of Richardson & Gay, consulting engineers, 220 Devonshire street, Boston, Mass., has been formed by Colonel Edward B. Richardson, formerly of Richardson & Hale, consulting engineers, and Harry Gay, who for the past nine years was in the Boston office of Stone & Webster, division of construction and engineering.

J. Hampton Baumgartner, heretofore assistant to the president of the National Association of Owners of Railroad Securities, is now president of the Baumgartner Advertising-Publicity Company, recently established, with headquarters at Baltimore, Md. Mr. Baumgartner has been connected with the investors' association since its organization in 1917, and formerly was publicity agent of the Baltimore & Ohio for several years.

J. W. Austin has been elected a member of the Detroit Graphite Company, Detroit, Mich., with the title of assistant secretary. He is well known throughout the paint and varnish industry, having been for 20 years with the Acme White Lead & Color Works, during the past 15 years as general purchasing agent of that company. In addition to other duties in the Detroit Graphite Company, Mr. Austin will direct the purchasing policy for both its Detroit and allied Canadian plants.

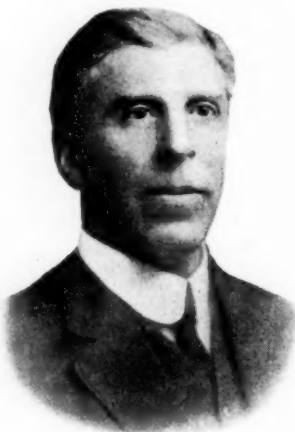
Sereno P. Fenn, vice-president of the Sherwin-Williams Company, Cleveland, Ohio, upon the completion of his fiftieth year of service with that company, was the guest of honor at a complimentary dinner given on April 1 at the Hollenden Hotel, Cleveland, by the Sherwin-Williams Company, its directors, officers, Get-together Club, Foreman's Club and Long Service Employees. Mr. Fenn has served in various capacities with this company, principally as cashier, treasurer and vice-president, since April 1, 1870.

Luis G. Morphy has resigned as principal assistant engineer of the Boston & Albany to take a position with The Foundation Company, New York City, as its representative in South America, and sailed on May 5 for Lima, Peru. Mr. Morphy was born in Orizaba, Mexico, on December 4, 1876, and was graduated from Rensselaer Polytechnic Institute in 1900. He began railway service on the New York Central, at Albany, N. Y., and went to Boston in 1907, as assistant engineer of maintenance of way. He is a member of the executive committee of the New England Railroad Club.

Obituary

George F. Griffin, son of the late Thomas A. Griffin, founder of the Griffin Wheel Company, and a director of that company, died on May 4 at Miami, Fla., at the age of 39 years.

Charles W. Johnson, assistant director of engineering for the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., died of double pneumonia on April 21, following an illness of only a few days. He was born on June 30, 1874, and graduated from the Ohio State University in 1896. He then entered the employ of the Steel Motor Company, Johnstown, Pa. Later he became superintendent of the Allis-Chalmers Bullock Company, of Cincinnati, Ohio. In 1907, he entered the employ of the Westinghouse Electric & Manufacturing Company, and was soon appointed chief inspector. In 1912 he became general superintendent of the East Pittsburgh works and in the early part of 1919 was made assistant manager of works. On January 1, 1920, he was appointed assistant director of engineering. Mr. Johnson was a member of the American Society of Mechanical Engineers, the American Institute of Mining Engineers, and the Engineering Society of Western Pennsylvania.



C. W. Johnson

Trade Publications

AIR COMPRESSORS.—The National Compressed Air Machinery Company, San Francisco, Cal., has published a bulletin, No. 20, describing the construction of a vertical type air compressor and containing a table of dimensions and specifications of the various models built by this company.

INGOT IRON WIRE.—The Page Steel & Wire Company, 30 Church street, New York, has published a pamphlet describing fully the electrical and physical properties of American ingot iron wire. This is the first complete publication of this data and the result of many tests which have been made during the past two years under the supervision of the Electrical Testing Laboratory, New York, and Frank F. Fowle, consulting electrical engineer for this company.

STANDARDIZED CONCRETE.—The Koehring Machine Company, Milwaukee, Wis., has issued a 20-page pamphlet containing a review of present practice in the improved mixing of concrete, written by E. A. Van Vleck. The book closes with a short statement of the special facilities of the Koehring mixer for controlling the proper proportion of water, for insuring thorough mixing and for controlling the time that the batch is in the mixer.

REGARDLESS of how efficiently the railways may be operated and how much co-operation they may be given by the shipping public, it will be impracticable, if industry and commerce continue to be as active as they have been for some months, for the railways to handle satisfactorily all the traffic which will be offered them. The fundamental trouble is that railroad facilities are now absolutely inadequate to the needs of the country and that they must be largely increased before the railways will be able to handle satisfactorily all the traffic which is offered to them.—S. M. Felton, *President Chicago Great Western Railroad.*

Financial and Construction

Railway Financial News

DELAWARE & HUDSON.—An issue of \$10,000,000 7 per cent ten-year gold bonds have been sold at par by Kuhn, Loeb & Co., and the First National Bank. The proceeds will be used to meet the maturity on August 1, 1920, of \$9,000,000 three-year notes, and for other general needs of the company.

DENVER & RIO GRANDE.—The Supreme Court has issued an order permitting the sale of securities owned by the Denver & Rio Grande so that the proceeds may be applied on a judgment for \$36,000,000 obtained by the Equitable Trust Company. The collateral to be sold consists of 3,000 shares of Western Realty stock; 30,000 shares of Globe Express Company; \$523,000 Colorado Midland Railway gold 4s; \$30,000 Western Pacific Railroad first mortgage bonds; 412½ shares Western Pacific Railroad preferred stock, and 712 shares of Western Pacific Railroad common stock.

LONG ISLAND.—Walter E. Frew, president of the Corn Exchange Bank, and James A. McCrea, formerly general manager of the Long Island Railroad, have been elected directors succeeding Percival Roberts, Jr., and Walter G. Oakman, resigned.

NORFOLK & WESTERN.—An issue of \$2,500,000 four-year 6 per cent secured gold notes have been sold by the Guaranty Trust Company at 96½, to yield more than 7 per cent. The notes, which are callable at 101¾, are secured by the deposit of Liberty bonds of a market value which shall at all times be 110 per cent of the principal of the notes. The proceeds of this issue will be used for building 18½ miles of branch line extending from Lenore, W. Va., to coal properties.

PENNSYLVANIA.—The time for minority stockholders of the Pittsburgh, Cincinnati, Chicago & St. Louis to deposit their holdings in exchange for 5 per cent mortgage bonds under the terms of the offer made by the Pennsylvania Company on March 15, 1920, has been extended from May 1 until May 29, 1920.

PITTSBURGH, CINCINNATI, CHICAGO & ST. LOUIS.—See Pennsylvania.

Railway Construction

PENNSYLVANIA.—Pennsylvania Offices, a new four-story building, 73 ft. by 100 ft., on Wells street, between Jackson and Van Buren streets, Chicago, is to be erected by the Pennsylvania Offices Corporation and leased to the Pennsylvania lines for 10 years at a net term rental of \$100,000. All of the general offices of that line at Chicago, except the ticket offices, will be housed in the new structure. The estimated cost of the building is approximately \$350,000, and it is expected that it will be ready for occupancy by August 1.

WABASH.—Contracts for the fabrication and erection of a bascule bridge over the River Rouge at Detroit, Mich., have been let and it is expected that the bridge will be in operation in the spring of 1921. The contract for the manufacture of the steel work and machinery was obtained by the American Bridge Company, New York City; the erection of the steel work machinery and dismantling of the present superstructure will be done by the Kansas City Bridge Company, Kansas City, Mo.; and the masonry work and removal of the present substructure will be done by the J. W. McMurtry Contracting Company, Kansas City, Mo. The proposed structure is a single trunnion bascule bridge with a double track, providing a clear navigating span of 125 ft., and is to be operated by electricity with an auxiliary operating plant using a gasoline engine. The foundation piers carrying the trunnion will be of concrete, carried to bedrock, and the rest pier supporting the end of the bridge is to be carried on a pile foundation. The bridge will be erected in a vertical position so as not to interfere with the use of the present bridge.

Railway Officers

Financial, Legal and Accounting

Frederick W. Sercombe, whose appointment as auditor of the Oregon-Washington Railroad and Navigation Company was announced in the *Railway Age* of March 5 (page 751),



F. W. Sercombe

was born on August 23, 1869, at Taunton, England. Mr. Sercombe was educated at Huish College, England, and entered railway service on January 1, 1898, as a clerk in the general auditor's office of the Union Pacific, later being placed in charge of the land grant, land and coal accounts. In 1903 he entered the employ of the Southern Pacific, with headquarters at San Francisco, Cal., doing special work. From 1904 to 1907 he was chief clerk of general and miscellaneous accounts on the same road and in 1907

he was promoted to special accountant. Three years later he was transferred to the executive offices of the Union Pacific and Southern Pacific at New York City as special accountant. In 1912 he was appointed assistant comptroller on the Union Pacific and served in this capacity until 1917, when he was appointed assistant to the director of the Division of Capital Expenditure of the United States Railroad Administration. He held this position until his appointment as auditor of the Oregon Washington Railroad and Navigation Company on March 1.

L. C. Sauerhammer who has been appointed assistant to the vice-president in charge of operation and maintenance of the Baltimore & Ohio with headquarters at Baltimore,



L. C. Sauerhammer

Md., served as assistant to the federal manager during the greater part of federal control. Mr. Sauerhammer was born at Littlestown, Pa., on September 7, 1883. He was educated in public schools and began railroad work on December 9, 1899 as clerk to a supervisor of the Baltimore & Ohio, to which road he has given his entire railroad service. On September 16, 1901, he was transferred to Cumberland, Md., as clerk to the division engineer. While at Cumberland he was appointed accountant and on Sep-

tember 1, 1902, he went to Pittsburgh, Pa., as chief clerk to the division engineer in which position he served until April 30, 1907, when he was appointed secretary to the chief engineer, maintenance of way at Baltimore, Ohio. A few months later he became assistant chief clerk with the same headquarters and in 1911, chief clerk to the superintendent, also located at Baltimore. He was appointed chief of the bureau

of federal and state commission reports, under the direction of the operating vice-president, on July 1, 1913. He was transferred to New York as chief clerk to the general manager in 1916 but returned to Baltimore on June 1, 1918 as chief clerk to the operating vice-president. Shortly afterwards, while remaining on the staff of the operating vice-president, he was appointed to superintendent of office organization and retained that position until April 1, 1919, when he became assistant to the federal manager.

J. L. East, who was recently appointed superintendent of stations and transfers of the Illinois Central and the Yazoo & Mississippi Valley, has been appointed car accountant of the same lines, with headquarters at Chicago, succeeding **J. M. O'Day**, who has resigned.

The Louisville & Nashville has announced the following appointments, effective March 1, all with headquarters at Louisville, Ky.: **Geo. W. Lamb**, assistant comptroller; **H. F. Thompson**, assistant comptroller; **W. F. Kennedy**, auditor capital expenditures; **Geo. Becker**, auditor receipts; **H. B. Cutter**, auditor freight accounts; **W. A. Meglemry**, auditor passenger accounts, and **G. B. Reeves**, auditor of disbursements.

Operating

Bernard J. Quilty has been appointed assistant superintendent of the Sudbury division of the Canadian Pacific, with headquarters at Sudbury, Ont., succeeding **R. B. Girouard**, transferred.

Forrest Wood Rosser, whose appointment as superintendent of the Chicago and Hammond terminals of the Erie, with headquarters at Chicago, was announced in the *Railway Age*



F. W. Rosser

of February 27 (page 662), was born on April 19, 1873, at Arcanum, Ohio. Mr. Rosser entered railway service on July 1, 1888, as a messenger with the Baltimore & Ohio. Two years later he was promoted to telegraph operator and yard clerk of the Cincinnati, Jackson & Mackinaw, now part of the Cleveland, Cincinnati, Chicago & St. Louis, and on October 1, 1891, he became operator, car distributor and extra despatcher on the Pennsylvania. In 1898 he was appointed despatcher on the Baltimore & Ohio and

one year later he was appointed despatcher on the Chicago, Milwaukee & St. Paul. He was later promoted to chief despatcher on the Chicago, Rock Island & Pacific and on February 20, 1904, he was promoted to trainmaster on that road. On July 1, 1912, he was promoted to superintendent. Four years later he entered the service of the Missouri, Kansas & Texas, as a trainmaster. From January 15, 1917, to February 1, 1918, he served as superintendent on that road and on the latter date was appointed assistant superintendent on the Erie, which position he held until March 1, 1920, when he was promoted to superintendent.

T. W. Flannagan, general storekeeper on the Minneapolis, St. Paul & Sault Ste Marie, with headquarters at Minneapolis, Minn., has been promoted to assistant to the general manager and assigned to special duties, effective May 1. **G. W. Leigh**, assistant general storekeeper, has been promoted to succeed Mr. Flannagan.

W. J. Uren, superintendent of the Quebec district of the Canadian Pacific, with headquarters at Farnham, Que., has been appointed assistant general superintendent of the same

district, succeeding **W. M. Neal**, transferred, effective April 19; **A. Williams**, superintendent of the Ontario district, with headquarters at London, Ont., has been transferred to Farnham to succeed Mr. Uren.

W. D. Post, trainmaster of the Southern, with headquarters at Knoxville, Tenn., has been appointed superintendent of the Columbia division of the Southern, with headquarters at Columbia, S. C., succeeding **F. S. Collins**, transferred; **R. L. McCullough** has been appointed superintendent of the Murphy division, with headquarters at Asheville, N. C., succeeding **T. S. Boswell**, promoted. These appointments became effective May 1.

J. E. Craver, superintendent of the Seattle division of the Northern Pacific, with headquarters at Seattle, Wash., has been appointed acting general superintendent of the Western district, with headquarters at Tacoma, Wash., succeeding **I. B. Richards**, who has been granted a leave of absence on account of ill health. **J. E. Campbell**, trainmaster at Seattle, has been appointed acting superintendent, to succeed Mr. Craver. The changes were effective April 24.

Charles Gilbert Johnson, who has been appointed superintendent station service of the Ohio region of the Erie, with headquarters at Youngstown, Ohio, as noted in the *Railway Age* of February 27 (page 662), served as

supervisor station service, with headquarters at New York during federal control. Mr. Johnson was born on January 8, 1876, near Ottawa, Kan. He received a public school education and began railroad work in 1894 as telegraph operator on the Southern Kansas division of the Santa Fe at Elk City, Kan. Afterwards he served as telegraph operator, agent and operator at various stations of the same division until March, 1897, when he was appointed joint live stock, passenger and freight agent at Cedarvale, Kan., where he remained until January, 1901. He then entered the service of the St. Louis, Iron Mountain & Southern, as clerk in the office of the superintendent of the Arkansas division at Little Rock, Ark. He filled other positions at the same place until March, 1905, when he was appointed local agent of the Little Rock & Hot Springs Western, now part of the Missouri Pacific, at Hot Springs, Ark. In March, 1906, he was promoted to the position of division agent of the Memphis division of the St. Louis, Iron Mountain & Southern, with headquarters at Wynne, Ark. In May, 1907, he was transferred to Monroe, La., as passenger and freight agent of the same road as well as of the Little Rock & Monroe, also part of the Missouri Pacific now. He became commercial freight agent of the Missouri Pacific, with headquarters at Monroe, in October, 1910, and in March, 1913, he was promoted to general agent, with headquarters at Jefferson City, Mo. He went to the Erie in 1917 as supervisor station service.

George E. Bates, real estate and industrial agent of the Delaware & Hudson, has been appointed assistant to the general manager for industrial development; **W. W. Bates**, superintendent personnel has been appointed assistant to the general manager for personnel and **H. F. Burch** superintendent transportation, has been appointed assistant to the general manager for transportation. These are newly created positions becoming effective May 2. The offices of superintendent of transportation and personnel have been abolished.

George M. Smith, superintendent of the Delaware division of the Pennsylvania, with headquarters at Wilmington, Del., has been transferred to the Baltimore Division, with headquarters at Baltimore, Md., succeeding **George R. Sinnickson**, resigned, and **W. L. Burt**, assistant superintendent of the Maryland division, has been transferred to the Baltimore division, the position of assistant superintendent of the Maryland division having been abolished for the present. These changes became effective May 1.

George A. Cellar, whose appointment as general superintendent of telegraph of the Pennsylvania System was announced in the *Railway Age* of February 20 (page 598), was

born in Delaware county, Ohio, on September 12, 1860. In 1877 he entered the service of the Pennsylvania on the Pittsburgh, Ft. Wayne & Chicago, serving as a clerk, telegraph operator and relief agent. In 1884 he was appointed manager and wire chief. The following year he was appointed chief clerk to the superintendent of telegraph of the Pennsylvania, Western lines, with headquarters at Pittsburgh, Pa., which position he held until his recent appointment as general superintendent of telegraph of the Pennsylvania Systems, with headquarters at Philadelphia. The position of general superintendent of telegraph of the Pennsylvania System is a newly created one and Mr. Cellar reports to C. M. Sheaffer, chief of transportation.

J. Leonard East, whose appointment as superintendent of stations and transfers of the Illinois Central and Yazoo & Mississippi Valley, with headquarters at Chicago, was announced in the *Railway Age* of April 9 (page 1173), has been promoted to car accountant of the same roads, with the same headquarters, succeeding **J. M. O'Day**, who has resigned to accept service elsewhere. Mr. East was born at Coulterville, Ill., and at the age of 15 entered railway service with the Illinois Central as a telegraph operator. He has served continuously with the Illinois Central for a period of 34 years, being promoted successively from operator to agent, division agent, industrial agent, inspector of stations, agent of the loss and damage bureau and superintendent of stations and transfers. During federal control Mr. East acted as a member of the committee which was appointed by the director of traffic of the United States Railroad Administration, to investigate efficient and economical methods of handling freight.

J. C. Austin, who has been appointed superintendent of the Mobile division of the Southern, with headquarters at Selma, Ala., as noted in the *Railway Age* of March 5 (page 750), served as trainmaster of the Birmingham division, with



C. G. Johnson



G. A. Cellar



J. L. East

headquarters at Birmingham, Ala., from 1917 until the termination of federal control. Mr. Austin began railroad work with the Southern and has been with that road continuously since 1891. He served first as lamp lighter at Sugar Valley, Ga. He became clerk in 1896; afterwards switchman and in 1901 yard foreman. He was promoted to general yardmaster in 1902. In 1915 he was appointed trainmaster of the Mobile division, with headquarters at Selma, Ala., and at the time mentioned above he was transferred to Birmingham.

Traffic

P. G. Findlay, freight traffic manager of the Michigan Central, with headquarters at Detroit, Mich., has resigned, effective March 5.

A. E. Hueneryager has been appointed chief of the tariff bureau of the New York Central, with headquarters at Cleveland, Ohio, effective May 1.

W. C. Barnes, general freight agent of the El Paso & Southwestern, with headquarters in El Paso, Tex., has been promoted to freight traffic manager, with the same headquarters, effective May 1.

W. S. Dawson, general claim agent of the El Paso & Southwestern, with headquarters in El Paso, Tex., has been promoted to assistant general freight agent, with the same headquarters, effective May 1.

W. H. Francis, special representative of the Buffalo, Rochester & Pittsburgh, has been appointed chief of tariff bureau, with headquarters at Rochester, N. Y., succeeding **J. F. Hamilton**, resigned.

C. E. Hilsabeck, assistant general freight agent of the El Paso & Southwestern, with headquarters in El Paso, Tex., has been appointed general agent, with headquarters at St. Louis, Mo., effective May 1.

Walter S. Saunders, who has been appointed general freight agent of the Virginian, with headquarters at Norfolk, Va., as noted in the *Railway Age* of March 5 (page 735), served as



W. S. Saunders

assistant general freight agent from March, 1910, until the termination of federal control. Mr. Saunders was born on August 3, 1871, at Richmond, Va. He was educated in public schools of that city and began railroad work in 1888, with the Chesapeake & Ohio at Richmond. He served first as billing clerk in the local freight office; then went to Roanoke, Va., in March, 1890, as an employee in the general freight office of the Norfolk & Western. In May, 1896, he became chief clerk of all mail despatch lines operating over the Norfolk & Western. In June, 1905, he was transferred as chief clerk to the assistant general freight agent of the same road. He went to the Virginian in 1909 as chief clerk to the general freight agent at Norfolk. He was promoted to assistant general freight agent at the time mentioned above.

T. E. Harris, who has been appointed traffic manager of the Georgia & Florida, with headquarters at Augusta, Ga., as noted in the *Railway Age* of March 19 (page 995), served as general freight agent from 1916 until the termination of federal control. Mr. Harris began railroad work in 1900 as waybill clerk in the agent's office of the Georgia Southern & Florida at Valdosta, Ga. He remained in that office until

1909 holding various positions, among them chief clerk and cashier. He was then appointed traveling freight agent at Cordele, Ga. In 1910 he returned to Valdosta as commercial agent for the Georgia & Florida. He was promoted to division freight agent in 1914, and in December, 1916, was appointed general freight agent.

Henry C. Snyder, who has been appointed general freight and passenger agent of the Erie, with headquarters at New York, as noted in the *Railway Age* of February 27 (page 661),



H. C. Snyder

served as general freight agent, with headquarters at Chicago from September, 1918, until the termination of federal control. Mr. Snyder was born at Delaware Water Gap, Penn., on July 14, 1868. He graduated from Belvidere Seminary, N. J. His first railroad work began in 1886 as agent and operator for the Lehigh & Hudson River. He entered the service of the Erie in October, 1887, as agent at Ramapo, N. Y. In 1892 he was transferred to Middletown, N. Y., and in 1893 to Newark, N. J. While at Newark he was appointed general agent in September, 1896. In 1903 he became division freight agent, with headquarters at Bradford, Pa. While serving in that capacity he was transferred first to Youngstown, Ohio, and afterwards to Buffalo, N. Y. He was appointed assistant general freight agent, with headquarters at Chicago in September, 1908, and on the date mentioned above he was promoted to general freight agent.

Mechanical

Ernest V. Williams, shop superintendent of the Buffalo, Rochester & Pittsburgh at DuBois, Pa., has been appointed superintendent motive power, with the same headquarters, effective May 1, succeeding **F. J. Harrison**, deceased.

E. Bowie has been appointed division master mechanic of the Brownville division of the Canadian Pacific, with headquarters at Brownville Junction, Me., succeeding **W. Wright**, who has been transferred, effective April 24.

Engineering, Maintenance of Way and Signaling

Luis G. Morphy, principal assistant engineer of the Boston & Albany, with headquarters at Boston, Mass., has resigned, effective May 1.

L. C. Miller, office engineer of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., has been appointed assistant chief engineer in charge of valuation; **R. C. Smith**, assistant engineer at Minneapolis, has been appointed principal assistant engineer succeeding **F. K. Bennett**, resigned. These appointments became effective March 15.

H. H. Garrigues, engineer maintenance of way of the Southern division, has been appointed superintendent of the Delaware division, succeeding **George M. Smith**, transferred; **Franklin Duane**, division engineer of the Baltimore division, has been appointed engineer maintenance of way, succeeding Mr. Garrigues; **W. F. Miller**, division engineer of the Williamsport division, has been transferred to the Baltimore division, succeeding Mr. Duane, and **N. D. Vernon**, supervisor of the Maryland division, has been appointed division engineer, succeeding Mr. Miller. These changes became effective May 1.

Railroad Administration

J. W. Newell, assistant comptroller of the Railroad Administration, with headquarters at Washington, has been appointed comptroller, succeeding **George H. Parker**, who has resigned.

J. W. Roberts, auditor, **Fred Pettijohn**, cost accountant, and **Stanley Wood**, office manager of the accounting section of the Railroad Administration, resigned on May 1 and have organized the Roberts-Pettijohn-Wood Corporation, with office at 20 East Jackson boulevard, Chicago, which will render a general accounting service, specializing in railroad accounting in matters arising under the new transportation act, settlements with the Railroad Administration, etc., and in allied industrial work. Mr. Roberts was formerly in the accounting department of the Atchison, Topeka & Santa Fe, and before federal control was district accountant for the Bureau of Valuation, Interstate Commerce Commission, at Kansas City.

General

The Lorain, Ashland & Southern has announced that the following officers were elected, effective April 16:

Name	Position	Headquarters
W. D. Holliday	Supt. mchg. oper.	Lorain, Ohio
John Dorsey	Gen. fr. & pass. agt.	Lorain, Ohio
J. F. Allenspaugh	Train master	Lorain, Ohio
P. H. Goda	Gen. m. of c. foreman	Lorain, Ohio
H. W. Scott	Supervisor	Lorain, Ohio
D. M. Messmore	Storekeeper	Lorain, Ohio

The Northwestern Pacific has announced that the following is its personnel, effective April 10:

Name	Position	Headquarters
W. S. Palmer	Pres. & Gen. Mgr.	San Francisco
A. H. Payson	Vice-pres.	San Francisco
Paul Shoup	Vice-pres.	San Francisco
G. L. King	Sec.	San Francisco
D. P. Ewing	Asst. Sec.	San Francisco
W. B. Burris	Compt.	San Francisco
H. W. Ellicott	Treas.	San Francisco
A. K. Van Deventer	Asst. treas.	New York
Stanley Moore	Gen. counsel	San Francisco
Elliott Johnson	Claims Atty.	San Francisco
H. G. Jenkins	Ass. to pres. & gen. mgr.	San Francisco
M. L. Gillogly	Indtl Asst. to pres. & g mgr.	San Francisco
J. K. Brassill	Gen. supt.	Sausalito
J. W. Williams	Ch. engr.	San Francisco
F. K. Zook	Val. engr.	San Francisco
G. H. McMullin	Supt. southern div.	Sausalito
W. J. Hunter	Supt. northern div.	Eureka
F. T. Vanatta	Supt. elec. activities	Sausalito
K. M. Nicles	Gen. car serv. agt.	Sausalito
H. W. Ellicott	Gen. pur. agt.	San Francisco
A. W. Dayton	Gen. storekeeper	Tiburon
J. J. Geary	Gen. fr. & pass. agt.	San Francisco
W. J. Cummings	Div. fr. & pass. agt.	Eureka

Obituary

Charles Watts, formerly general superintendent passenger transportation of the Pennsylvania, died on April 29 at Mt. Dora, Fla., at the age of 75 years.

Guy M. Freer, of Cincinnati, Ohio, executive secretary of the National Industrial Traffic League, with headquarters at Chicago, died suddenly on April 30, of pneumonia. Mr. Freer was born in Ohio in 1872. He was formerly traffic manager of the Chamber of Commerce of Cincinnati, and while in that position was elected president of the National Industrial Traffic League, which office he held for four years, up to November last. Since then he has been executive secretary of the League, with office in Chicago.

Wilson Worsdell, formerly chief mechanical engineer of the North Eastern Railway of England, died recently at South Ascot, Berkshire, England, his death being reported in the Railway Gazette (London), of April 16. Mr. Worsdell was a pupil at the Altoona shops of the Pennsylvania Railroad when he was a young man and began his railway service in England on the London & North Western. He was at

the head of the mechanical department of the North Eastern from 1890 to 1910. During this period he built about 1,000 locomotives and several thousand cars. He introduced high capacity freight cars. He had been president of the Association of Railway Locomotive Engineers, and for several years past had been a director of the Westinghouse Brake Company.

Frederick J. Harrison, superintendent motive power of the Buffalo, Rochester & Pittsburgh, with headquarters at Du Bois, Pa., died on April 16 following an illness of several months resulting from pneumonia. Mr. Harrison was born in Rochester, N. Y., on February 22, 1864. He attended a public school in his native city until he was 14, when he started to learn the machinist's trade. After 11 years spent as an apprentice and a machinist he became foreman for the New York Central, in which capacity he served for three years. He then discontinued railroad work for a short time but resumed it in 1888, when he became machinist in the Buffalo, Rochester & Pittsburgh's shops at Rochester. He was promoted to foreman of the same shops in 1890 and in 1894 was again promoted to the position of general foreman in charge of locomotive and car works at Rochester. He held that position for six years. In 1901 he went to DuBois, Pa., as general foreman of the DuBois Iron Works, but resigned shortly afterwards to return to the Buffalo, Rochester & Pittsburgh as general foreman of the DuBois shops, then under construction. In 1904 he was appointed master mechanic and in 1910 he was promoted to the position he held at the time of his death.

E. W. McKenna, formerly vice-president of the Chicago, Milwaukee & St. Paul, died recently. Mr. McKenna was born on October 24, 1848, at Pittsburgh, Pa. His first railroad work began in May, 1862, as messenger for the Pennsylvania. Afterwards he became operator. For a portion of the time from 1864 until 1865 he served as operator on the military railroads in Virginia. At the close of the civil war he entered the employ of the Pittsburgh, Cincinnati & St. Louis and served consecutively as operator, freight clerk and general superintendent's clerk until 1869. From then until 1880 he filled other minor railroad positions and was then appointed superintendent of the Jeffersonville, Madison & Indianapolis. On February 1, 1886, he went to the Pennsylvania to undertake special services under the direction of the general manager of the lines west of Pittsburgh. From 1887 until 1904 he made steady progress, occupying various positions on the New York, Lake Erie & Western, Chicago, Milwaukee & St. Paul and the Great Northern. He became assistant to the president of the Chicago, Milwaukee & St. Paul on February 1, 1904, and on September 23, 1905, was elected second vice-president of that road. In 1909 he became vice-president in charge of operation and construction. He was retired in the latter part of 1914. Mr. McKenna was the inventor of a process for renewing steel rails and organizer of the McKenna Steel Working Company, of which he was president for a number of years.



Photograph from Underwood & Underwood, N. Y.

A Bad Break Near Boston